

In re High-Tech Employee Antitrust Litigation

Expert Witness Report of

Kevin F. Hallock

October 27, 2013

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TABLE OF CONTENTS

	<u>Page</u>
I. Qualifications	1
II. Assignment and Summary of Conclusions	2
III. Prior Testimony	5
IV. Compensation System Design	5
V. The Defendants Had Formalized Pay Systems	11
VI. Issues of Internal Equity	29
VII. Internal Equity and Pay for Performance Are Not Mutually Exclusive	50
VIII. How Restricting Cold Calling Can Restrict Information and Pay	53
IX. How A Structured Compensation System Can Be Related to Systematic Compensation Effects	56
X. Market Data and Compensation Surveys.....	58
XI. Examples of How Market Pressure Led to Pay Changes at Defendants.....	60
XII. Agreements of the Kind Described in this Case Could Limit Recruiting and Have Negative Consequences on Compensation for Employees of Defendant Firms.....	63
XIII. Given the Defendants' Formalized Pay Structures and Compensation Design, Effects on Compensation Could be Widely Felt	66
XIV. Conclusions.....	69

I. Qualifications

1. I am the Donald C. Opatrny '74 Chair of the Department of Economics, the Joseph R. Rich '80 Professor, Professor of Economics and Human Resource Studies, and Director of the Institute for Compensation Studies at Cornell University in Ithaca, NY. I am also a Research Associate at the National Bureau of Economic Research in Cambridge, MA and a Distinguished Principal Researcher at The Conference Board in New York, NY. Additionally, I serve on the Compensation Committee of Guthrie Health in Sayre, PA and on the Board of Directors of the Society of Certified Professionals at WorldatWork in Scottsdale, AZ. I earned a B.A. in Economics from the University of Massachusetts at Amherst in 1991, a M.A. in Economics from Princeton University in 1993, and a Ph.D. in Economics from Princeton University in 1995. I previously taught at the University of Illinois at Urbana-Champaign from 1995-2005 and have been at Cornell University since 2005.

2. My work has covered a variety of fields including compensation design, executive compensation, the relationship between labor and financial markets, wage differentials and inequality, the effects of job loss, and labor economics. My work has been published in a variety of outlets including *The American Economic Review*, *The Journal of Economic Perspectives*, the *Journal of Labor Economics*, the *Journal of Public Economics*, the *Journal of Corporate Finance*, *Labour Economics*, the *Industrial and Labor Relations Review*, *Research in Personnel and Human Resources Management*, and *Research in Labor Economics*. I have edited or co-edited a variety of volumes including co-editing *Labor Economics* (1995) and *The Economics of Executive Compensation* (1999). My book regarding compensation, *Pay*, was published in 2012. It was awarded Princeton University's Richard A. Lester Award for the Outstanding Book in Industrial Relations and Labor Economics in 2012.

3. I have served as a referee for over 40 different academic journals. I previously served as an Associate Editor at the *Journal of Labor Economics* and at *Economics Bulletin* and am currently an Associate Editor at *Labour Economics*, am on the editorial board of the *Industrial and Labor Relations Review*, and am on the advisory boards of the *Journal of Organizational Effectiveness: People and Performance* and *Compensation and Benefits Review*. I have given lectures at over 30 different Universities. I have taught courses at Cornell on Managing Compensation, Executive Compensation, Pay, Finance for Human Resources, and Labor Economics. In 2013, I was elected a Fellow of the National Academy of Human Resources. A more complete description of my qualifications is included in my curriculum vitae in Appendix A.

4. In connection with this matter, I reviewed and considered materials from this case, including the consolidated amended complaint, depositions, deposition exhibits, and salary or market pay range materials produced by or compiled from materials of each Defendant. Information that I considered in forming my opinions include the items listed in Appendix B or listed in this report and any attached exhibits. The bases for my opinions are described in this report and any attached exhibits. I reserve the right to supplement this report in view of any new material or information provided to me after the date of this report.

5. My compensation for my work in this matter is not contingent upon my findings or the outcome of this litigation. I am being compensated at my current hourly rate of \$750 per hour.

II. Assignment and Summary of Conclusions

6. I understand that plaintiffs are representing a class of salaried technical, creative, and research and development employees (the “Class”) consisting of those described in

Appendix B to the October 1, 2012 Expert Report of Dr. Edward E. Leamer, and who worked for a Defendant while that Defendant participated in at least one “no cold-call” agreement with another Defendant.

7. I have been asked by counsel for the plaintiffs to:
 - a. Analyze Defendants’ pay practices to determine whether Defendants used formal administrative pay systems; and
 - b. Determine whether suppressing recruiting of Defendants’ workers, including technical workers, are predicted to have led to the result of suppressing the pay of all or nearly all Class members, including those with different job titles.
8. As a result of my work to date, the following are among my conclusions.
 - a. The Defendants had formalized compensation systems. These include using market surveys, using survey data, having clear structures, grades and many other features of formalized compensation systems.
 - b. The Defendants made use of the ideas of compensation beyond salary. These other forms of compensation include components such as bonuses and stock.
 - c. Issues of internal equity and equity in general were important to Defendant firms. Whether they used the terms or not, the concepts of internal equity and also generally treating similar employees similarly were important to Defendant firms.
 - d. There is documented evidence that pay moved in Defendant firms in systematic and structured ways.

- e. A compensation system that includes pay for performance is not mutually exclusive from one that takes internal equity into account.
- f. Restrictions on cold-calling clearly had impacts on employees among the Defendant firms. In particular, restrictions on cold-calling hamper compensation levels for employees. The restrictions could be expected to hamper levels of compensation for those who would have been cold-called and for all or nearly all Class members of Defendant firms.
- g. Agreements such as restrictions on cold-calling could be expected to limit and have negative consequences on employee compensation for those workers directly involved and for nearly all Class members. Given the formalized pay structures, use of external market data, and compensation design in Defendant firms, nearly all Class members could be expected to have pay that would otherwise be higher.
- h. The formalized systems in place at the Defendants relied on structures, external data from the market and the like, and notions of equity were present at Defendants. As a result, those effects cycle on to other employees and their levels of compensation. Therefore, the formal compensation structures could be expected to lead to an effect on nearly all Class members.
- i. Although I have not been asked to estimate the magnitude of damages in this case, based on my knowledge of compensations systems and the materials considered, I believe that agreements against cold calling, such as the agreements at issue in this case, are predicted to suppress the

compensation of all or nearly all members of the Class, including those with different job titles.

III. Prior Testimony

9. I have testified at a deposition three times, including once in this case, and have not testified at a trial. During the previous four years, I have testified as an expert at a deposition in two cases: *William Hale Hubbell vs. G.J. Ratcliffe, Richard W. Davies, Andrew McNally IV., individually and as trustees* and, in May 2013, in the current matter. This current case is the first time I have testified as an expert in a class action lawsuit.

IV. Compensation System Design

10. Many firms use administrative pay systems.¹ These systems typically include standardized features, such as job analysis, job evaluation, use of market surveys and external market data, and salary bands and zones or grades and ranges. This section briefly outlines some features of these systems.

11. It is noteworthy that an important feature of these systems is that often the internal structure is set in advance of using external compensation information. When setting up these systems the internal structure is set and then external data is then matched to the internal structure to set pay levels.

12. Many organizations have a business strategy that is then linked with a compensation strategy and philosophy. Organizations often start with their own compensation strategy, which of course can evolve over time, before setting up the more technical features of the pay system.

¹ See, for example, Milkovich, Newman and Gerhart (2011, 2014), Martocchio (2004), or Hallock (2012).

13. Job analysis is the “systematic process of collecting information that identifies similarities and differences in the work”.² Harvey (1991) notes two important features of job analysis. First, job analysis should describe observable characteristics of jobs. Second, individual people in those jobs should be kept separate from the job analysis. To be sure, individual differences matter in compensation design but are not used at this point in the evolution of a compensation system.

14. Job analysis can become very specific and detailed. In fact, Martocchio (2004) points out very specific details of job elements in job analysis such as element, task, position, job, job family, and occupation.³ This begins with an “element,” which could be as simple as putting a piece of paper in a scanner to scan a document all the way up to a “job family”. The rest of the list from Martocchio (2004) just aggregates to higher and higher levels. A “Task” is the next up from an element. A position is a group of tasks that make up the activities that a specific employee might perform. For example a junior administrative assistant might make flight reservations, distribute mail, answer phones and perform related activities. A job may be reflected in a set of positions. For example, there might be many different junior administrative assistants all doing a very similar job. The job family is the next level up.⁴ A job family might be administrative jobs, or technical jobs, or marketing jobs. Different organizations may do this differently. Overall structure is what is important.

15. An additional step in performing a job analysis involves collecting information on job content (e.g. tasks, activities, work demands), characteristics of employees who hold these sorts of jobs (e.g. technical skills, manual dexterity, leadership), internal relationships (e.g.

² Milkovich, Newman and Gerhart (2011), p. 97.

³ Martocchio (2004), page 198.

⁴ Hallock (2012), page 63-64.

supervisors, peers), and external relationships (e.g. regulators, customers, suppliers).⁵ Henderson (2006) describes a series of examples of questionnaires that are used by firms to collect this kind of information in their organizations. O*NET⁶ -- a revision of the U.S. Department of Labor Dictionary of Occupational Titles -- is an example of these systems. O*NET has extraordinary detail on the characteristics of hundreds of jobs but includes a set of overarching descriptors: knowledge, skills, abilities, work activities, interests, work content, and work values.

16. Job evaluation in the next step in setting up a pay system using a job-based structure as described here. Job evaluation “is the process of systematically determining the relative worth of jobs to create a job structure for the organization. The evaluation is based on a combination of job content, skills required, value to the organization, organizational culture, and the external market. This potential to blend organizational forces and external market forces is both a strength and a challenge of job evaluation”.⁷

17. Companies use a variety of approaches to identify relative differences in their jobs before benchmarking them to external data. There are several ways to order or rank jobs relative to one another inside an organization.⁸

18. Internal comparisons among workers are clearly important to workers and to organizations. This is the case both when organizations are organizing their structures and when making individual pay decisions. Organizations are also concerned with individual pay comparisons, pay and equity, and internal equity, as confirmed in this case at each Defendant organization, documented below.

⁵ Milkovich, Newman and Gerhart (2011), Hallock (2012) and others discuss these issues.

⁶ See <http://online.onetcenter.org>.

⁷ Milkovich, Newman and Gerhart (2011), pp 129-130.

⁸ For example, there is evidence that Pixar refers to an [REDACTED] (see [REDACTED], Pixar, PIX00049042, exhibit 1305). This is related to what is known as a point method where compensable factors are articulated and jobs are essentially ranked on the basis a set of points each.

19. Internal comparisons are also studied by academics from different disciplines. These include a set of studies on fairness (Levine, 1993), and pay secrecy (Milkovich and Anderson, 1972, Lawler, 1967, and Card, Mas, Moretti and Saez, 2012).

20. A next step in a formal pay system is to match the set internal structure to external market data. This is something that Defendants in this case have done for many years. Finding the right market data and the appropriate survey is described in the literature, including Cardinal and Florin (2012). Benchmark jobs are important since they are jobs that will ultimately be used to match the internal structure that has been identified. However, even in the absence of perfect benchmark jobs, formal pay systems can operate.

21. An example of using hypothetical external market data is shown in Figure 1. I created all of the data in Figure 1 for purposes of illustration. In a real-world example, the data in the figure could be provided by, for example, an external consulting company to match to a set of nine real-world jobs. For each of the nine jobs⁹, 1 - 9, displayed in Figure 1, I have reported a set of hypothetical observations of external market data, each represented by an open circle.

22. Companies often want to know certain statistics that come from the data, for example the median (middle) point in the data, or other percentages. In addition to the median (yellow circle), I have reported the 10th percentile (the point at which 10 percent of the data are lower, as a red "+") and the 90th percentile (the point at which 10 percent of the data are higher, as a green "+") of the hypothetical data.

23. After the external market data are overlaid on the internal structure, a "market pay line" can be created. This can be done in a number of ways, including by creating the "line of best fit" through the data. In some cases, the line is simply the "ordinary least squares regression line". It is the line that minimizes the sum of the squared distances from each point and the line.

⁹ These could also be job categories (broader than jobs).

This can show how the company pays, given its strategy, system for ranking jobs, and internal and external market forces.

24. The market pay line is effectively showing, given the external market, how this company will pay at a point for a given job.¹⁰ It can also help companies consider how to pay for jobs for which market data are not readily available.

25. Even in a formal pay structure, it is likely that not all people doing the same job within a firm are all paid the same salary. There are a wide variety of reasons for this. This is one reason why, in a final stage, firms create bands and zones or grades and ranges or other systems to essentially put “boxes” around each type of job.¹¹ [REDACTED]

[REDACTED]¹²

26. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁵

27. Many organizations use various versions of what I have outlined in this section.

¹⁰ Note the explicit reference to a [REDACTED] in powerpoint on pay design, LUCAS 00188717, exhibit 715.10 and reference at Intel to [REDACTED] in powerpoint [REDACTED], May 5, 2010, 76582DOC000004_000004, exhibit 399.4. See also references to [REDACTED], 76582DOC000348, page 4 (Intel).

See Milkovich, Newman and Gerhart (2011), page 265.

¹² See spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab [REDACTED].

¹³ Created from data in spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab “Employee Data”. A related example from Intel showing [REDACTED] Exhibit 2043.14.

¹⁴ See, for example, page 265 of Milkovich, Newman and Gerhart (2011) in Exhibit 8.17.

¹⁵ Note, however, the horizontal axis for each job grade has some width so it is a “box” with a top and a bottom. But it can be characterized as a vertical line with no width, as in many subsequent figures.

28. So far I have been focused on salaries. Wage and salary income is an important and large part of labor compensation. But there are other components in total compensation, including bonuses, stock, stock options and other pay.

29. There is evidence that total compensation is correlated with salary. For example, see the [REDACTED]

[REDACTED].¹⁶ Elsewhere I will show the higher the job level the higher the salary in multiple organizations. [REDACTED]

30. An additional example of the link comes from an [REDACTED].¹⁷ [REDACTED]

[REDACTED].¹⁸ In Figure 4, I plot information from this sheet¹⁹ and use only three columns of the data [REDACTED]

[REDACTED] In Figure 4, I have plotted three panels. [REDACTED]

¹⁶ [REDACTED], 231APPLE10067, exhibit 1854.5.

¹⁷ Excel spreadsheet, [REDACTED], APPLE 231APPLE098912, exhibit 1858.2.

¹⁸ Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 112.

¹⁹ Excel spreadsheet, [REDACTED], APPLE 231APPLE098912, exhibit 1858.2.

Clearly a reasonable fraction of cash compensation comes in the form of nonbase wages. In the bottom left panel, I plot the bonus percentage against the base salary for each of the 21 job levels. Here there appears to be an increasing relationship between the percent bonus and salary.

31. There is substantial evidence in general, that stock (e.g. stock, stock options) as a fraction of total compensation is correlated with job level and salary.²⁰

32. There can be important credential effects to certain phenomena in labor markets, such as being associated with a college degree or being associated with well-known organizations. There is a large literature in economics on the economic returns to education (e.g. Card, 1999, 2001). There is also a literature on estimating the difference between productivity and the signaling effect of education on earnings (e.g., Spence, 1973, Hungerford and Solon, 1987 and Weiss, 1995). For example, do those with high levels of education have higher earnings because they learned more in school and are, therefore, more productive workers, or is the credential of the educational institution a signal to employers of their high ability or work ethic? Just as there could be signaling and productivity effects of education on earnings, there too could be productivity and signaling effects of the employer brand on earnings and future earnings. For example, working for a high-profile or well-known employer, including any of the seven Defendants, could have positive benefits to an employee including monetary and non-monetary compensation in the future.

V. The Defendants Had Formalized Pay Systems

33. There is evidence in the testimony and documents I reviewed in this case that the Defendants each had formalized or sophisticated human resource (HR) or compensation systems

²⁰ See, for example, Hallock (2012), page 92, for an example of the link between CEO cash compensation and CEO total compensation (including equity).

of one type or another. The systems may not contain all features of the example I outlined above but they are certainly formalized compensation systems, as evidenced, for example, by their use of jobs, job families, grades, salaries, ranges, and benchmark data.

34. **Adobe:** There is evidence that Adobe had formalized compensation systems. Included among the evidence that Adobe had formal structures is data Adobe produced to plaintiffs.²¹ That information [REDACTED]

[REDACTED]. Additional data include [REDACTED]

[REDACTED].²²

35. Additional evidence that Adobe had formalized pay systems is contained in the deposition of Ms. Donna Morris, Vice President of Global Human Resources until March 2007, when she became Senior Vice President of Global Human Resources. Ms. Morris noted [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].²³

36. Ms. Morris also testified, [REDACTED]

[REDACTED]²⁴

37. Ms. Morris similarly affirms in her declaration, [REDACTED]

[REDACTED]
[REDACTED]

²¹ See spreadsheet [REDACTED]

²² Spreadsheet, [REDACTED]; [REDACTED] (2008); [REDACTED] (2009); [REDACTED] (2010).

²³ Deposition of Ms. Donna Morris, Adobe, August 21, 2012, page 154.

²⁴ Deposition of Ms. Donna Morris, Adobe, August 21, 2012, page 155.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁵.

38. Additional evidence that Adobe had formalized compensation and HR systems comes from the deposition of Ms. Rosemary Arriada-Keiper, who served as Adobe's Manager of Global Compensation, and was asked [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁶

39. As an example of the structure at Adobe, Ms. Arriada-Keiper mentioned [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁷.

40. Additional evidence that Adobe had formalized compensation and HR systems was in reference to the [REDACTED]. Ms. Arriada-Keiper was asked [REDACTED]

²⁵ Declaration of Ms. Donna Morris of Adobe, September 13, 2011, exhibit 416.7.

²⁶ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 24.

²⁷ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 31.

[REDACTED]²⁸ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁹.

41. Additional evidence that Adobe had formalized HR and compensation systems is from the deposition of Mr. Jeffrey Vijungco, Adobe's Director of Talent Acquisition, who was asked, [REDACTED]

[REDACTED]

[REDACTED]³⁰

42. Additional evidence of formalized systems at Adobe is from the deposition of Mr. Bruce Chizen, Adobe's President and CEO from 2000 to 2007, who noted, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]³¹.

²⁸ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 82.

²⁹ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, pages 82-3.

³⁰ Deposition of Mr. Jeffrey Vijungco, Adobe, October 5, 2012, page 29.

³¹ Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 96.

43. Adobe also used external market data. Mr. Chizen testified [REDACTED]

[REDACTED]³²

44. There is also evidence that Adobe focused on particular markets for benchmarks. For example, Mr. Chizen was asked if there were particular markets that Adobe used as benchmarks or guidelines for setting salary ranges. He responded affirmatively, [REDACTED]

[REDACTED]³³

45. Adobe also used market surveys, gathered by Adobe's [REDACTED]

[REDACTED]³⁴

46. Additional evidence that Adobe had formalized HR and compensation systems comes from evidence of [REDACTED]

[REDACTED]³⁵

47. [REDACTED]

[REDACTED]³⁶

48. **Apple:** There is evidence that Apple had formalized compensation systems.³⁷

Additional data include [REDACTED]

[REDACTED] Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 97.

³³ Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 98.

³⁴ Deposition of Mr. Jeffrey Vijungco, Adobe, October 5, 2012, page 31.

³⁵ [REDACTED], Adobe, ADOBE_000622, exhibit 210.12.

³⁶ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, pages 159-60.

³⁷ See spreadsheet [REDACTED], 231APPLE007258-59 (2007); Spreadsheet, [REDACTED]

³⁸ See, for example, [REDACTED], 231APPLE009282, exhibit 268.5.

[illegible]

[REDACTED]

[REDACTED] 41

⁴¹ Deposition of Mr. Mark Bentley, Apple, August 23, 2012, page 252.

[REDACTED]

[REDACTED]⁴²

52. Additional evidence of a formal salary and HR system at Apple is from Senior Director of Compensation Steven Burmeister's deposition. He testified, [REDACTED]

[REDACTED]

[REDACTED]⁴³.

53. Mr. Burmeister also noted, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁴⁴.

54. **Google:** There is evidence that Google had formalized compensation systems. That information includes [REDACTED]⁴⁵ For example, note again Figure 2 which was created from a Google spreadsheet and additional data

[REDACTED]

[REDACTED]⁴⁶ This spreadsheet documented [REDACTED]. [REDACTED]

[REDACTED]

[REDACTED]

⁴² Deposition of Mr. Mark Bentley, Apple, August 23, 2012, page 262-3.

⁴³ Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 18.

⁴⁴ Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 50.

⁴⁵

[REDACTED]

⁴⁶ See spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab [REDACTED]

Google Director of Compensation Frank Wagner testified [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁴⁸.

55. Additional evidence that Google had formalized structures is in data Google produced to plaintiffs.⁴⁹ That information shows that Google had [REDACTED]

[REDACTED].

56. Google former Senior Vice President of People Operations (HR) Shona Brown also confirmed [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁵⁰.

57. Google former Senior Vice President of Engineering Alan Eustace confirmed

[REDACTED]

[REDACTED]

[REDACTED]

⁴⁷ Deposition of Mr. Frank Wagner, March 7, 2013, page 57.

⁴⁸ Deposition of Mr. Frank Wagner, March 7, 2013, page 58.

⁴⁹ See spreadsheet "Employee Type Count by Employer".

⁵⁰ Deposition of Dr. Shona Brown, January 30, 2013, page 253.

[REDACTED]

[REDACTED]⁵¹

58. **Intel:** There is evidence that Intel had formalized compensation systems. Included among this is evidence that Intel had formal structures in data provided by Intel to plaintiffs.⁵² That information shows that Intel had [REDACTED]

[REDACTED]

[REDACTED]⁵³

59. Additional evidence that Intel had formalized pay systems comes from a document called [REDACTED]

[REDACTED]⁵⁴

60. Additional evidence that Intel had formalized HR and compensation systems comes from a document called [REDACTED]

[REDACTED]

[REDACTED]⁵⁵

61. Additional evidence that Intel had formalized pay systems comes from the deposition of Ms. Patricia Murray, Intel's former Vice President of Human Resources (1996-2012). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁵¹ Deposition of Mr. Alan Eustace, February 2013, page 132.

⁵² See spreadsheet [REDACTED]

⁵³ Spreadsheet, [REDACTED]

⁵⁴ [REDACTED] 76583DOC007693, exhibit 2030, page 65. [REDACTED], 765825DOC001211, exhibit 400, page 31.

⁵⁶ Deposition of Ms. Patricia Murray, Intel, February 14, 2013, page 15.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁵⁷

62. There is additional evidence that Intel had formalized HR systems. Intel Senior Vice President of Human Resources Deborah Conrad testified, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁵⁸

63. [REDACTED]

[REDACTED]

[REDACTED]⁵⁹

64. Additional evidence that Intel had formalized compensation and HR systems includes reference to [REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁵⁷ Deposition of Ms. Patricia Murray, Intel, February 14, 2013, pages 15-16.

⁵⁸ Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, pages 23-4.

⁵⁹ Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 34.

[REDACTED]

65. Additional evidence that Intel had formalized pay systems comes from the deposition of Technology Development Manager Mr. Randall Goodwin who was asked, [REDACTED]

[REDACTED]

[REDACTED] 64 [REDACTED]

[REDACTED]

[REDACTED] 65

66. Additional evidence that Intel had formalized compensation and HR systems came from the deposition of Compensation and Benefits Specialist Daniel McKell. Mr. McKell was asked [REDACTED]

[REDACTED]

[REDACTED] 66

67. There is additional evidence that Intel has formalized systems. Mr. McKell was asked [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 67

68. [REDACTED]

[REDACTED] 68

69. There is also evidence that Intel referred [REDACTED]

[REDACTED]

[REDACTED] 69

⁶⁴ Deposition of Mr. Randall Goodwin, Intel, March 15, 2013, page 51.

⁶⁵ Deposition of Mr. Randall Goodwin, Intel, March 15, 2013, page 52.

⁶⁶ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 47.

⁶⁷ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 49.

⁶⁸ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 56.

70. Mr. McKell described [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁷⁰.

71. There is additional evidence of formalized pay and HR systems at Intel.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁷³

72. Mr. McKell affirmed at his deposition the statement in his declaration⁷⁴ that Intel

[REDACTED]

[REDACTED]

[REDACTED]⁷⁵ Soon after Mr. McKell was asked, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁷⁶.

⁶⁹ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 73.

⁷⁰ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 87-8.

⁷¹ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 90.

⁷² Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 91.

⁷³ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 92.

⁷⁴ Declaration of Mr. Danny McKell, Intel, September 13, 2011.

⁷⁵ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 154.

⁷⁶ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 155.

73. **Intuit:** There is evidence that Intuit had formalized compensation systems.

Included among this is [REDACTED]

[REDACTED].⁷⁷ That information shows that Intuit had [REDACTED]

[REDACTED].

74. Additional evidence that Intuit had formalized HR and compensation systems is contained in one of the documents that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁷⁸ When Intuit Director of Talent Acquisition Chris Galy was asked [REDACTED]

[REDACTED].⁷⁹

75. Intuit also indicated other evidence of formal pay structures. Vice President of Human Resources Mason Stubblefield described [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

⁷⁷ Spreadsheet: [REDACTED] INTUIT_031024 (2009), INTUIT_048148_2005.

⁷⁸ [REDACTED], Intuit, INTUIT_039756, exhibit 2140.4.

⁷⁹ Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 193.

⁸⁰ Deposition of Mr. Mason Stubblefield, Intuit, March 29, 2013, pages 20-1.

[REDACTED].⁸¹ In addition, he noted, [REDACTED]
[REDACTED]

[REDACTED].⁸²

76. Intuit also has [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].⁸⁴

77. **Lucasfilm:** There is evidence that Lucasfilm had formalized compensation systems. Included among this is data provided by Lucasfilm to plaintiffs.⁸⁵ That information shows that Lucasfilm had a variety of compensation structure features including salary min, mid and max information, grades and job titles.

78. Former Senior Director of Human Resources Ms. Sharon Coker testified [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].⁸⁷

79. Ms. Coker also [REDACTED]
[REDACTED]

⁸¹ Deposition of Mr. Mason Stubblefiled, Intuit, March 29, 2013, page 25.

⁸² Deposition of Mr. Mason Stubblefiled, Intuit, March 29, 2013, page 70.

⁸³ Powerpoint, Leveraging Compensation and Performance, Intuit, January 7, 2005, exhibit 1761.19.

⁸⁴ Deposition of Mr. Mason Stubblefiled, Intuit, March 29, 2013, page 87.

⁸⁵ [REDACTED] LUCAS00221117 (2007 – 2012).

⁸⁶ Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 242.

⁸⁷ Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 242.

[REDACTED]

[REDACTED]⁸⁸.

80. She testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁸⁹.

81. There is additional evidence that Lucasfilm had formalized HR and compensation systems. For example, [REDACTED]

[REDACTED]⁹⁰

82. Additional evidence of formalized compensation or HR systems include the document reference: [REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]⁹¹.

83. Additional evidence for formalized systems for compensation and HR at Lucasfilm include a [REDACTED]

[REDACTED]

⁸⁸ Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 249.

⁸⁹ Deposition of Ms. Sharon Coker, Lucasfilm, November 1, 2012, page 250-1.

⁹⁰ Powerpoint, Global Compensation Project, Lucasfilm Ltd., September 22, 2005, exhibit 944.9.

⁹¹ [REDACTED], January 21, 2009, Lucasfilm, LUCAS00189288, exhibit 945.13.

[REDACTED]

[REDACTED]

[REDACTED]⁹²

84. There is additional evidence that Lucasfilm had formalized HR and compensation systems. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁹³

85. A Lucasfilm [REDACTED]

[REDACTED]⁹⁴

86. **Pixar:** There is evidence that Pixar had formalized compensation systems. Included among this is data provided by Pixar to plaintiffs.⁹⁵ That information shows that Pixar

[REDACTED]

[REDACTED]⁹⁶

87. For example, Vice President of Human Resources and Administration Lori McAdams noted in her deposition, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁹⁷

⁹² LUCAS00188750-LUCAS00188753, exhibit 959.43-959.46.

⁹³ Deposition of Ms. Michelle Maupin, February 12, 2013, page 39.

⁹⁴ [REDACTED], exhibit 715.56.

⁹⁵ See spreadsheet [REDACTED].

⁹⁶ See, for example, [REDACTED]

⁹⁷ Deposition of Ms. Lori McAdams, August 2, 2012, page 29.

88. Ms. McAdams also noted [REDACTED]

[REDACTED]

[REDACTED]

⁹⁸

89. Ms. McAdams also noted information about [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁹⁹

90. Ms. McAdams also was asked about [REDACTED]

[REDACTED]

[REDACTED]

¹⁰⁰

91. [REDACTED]

[REDACTED]

[REDACTED]

¹⁰¹

92. [REDACTED]

[REDACTED]

[REDACTED]

¹⁰²

93. Additional evidence of formal pay systems at Pixar are from Manager of Human Resources Stephanie Sheehy's deposition. She was asked, [REDACTED]

[REDACTED]

⁹⁸ Deposition of Ms. Lori McAdams, August 2, 2012, page 32.

⁹⁹ Deposition of Ms. Lori McAdams, August 2, 2012, pages 40-41.

¹⁰⁰ Deposition of Ms. Lori McAdams, August 2, 2012, page 60.

¹⁰¹ Deposition of Ms. Lori McAdams, August 2, 2012, page 61.

¹⁰² [REDACTED] PIX00001263, exhibit 119.

[REDACTED]

[REDACTED]¹⁰³

94. [REDACTED]

[REDACTED]

[REDACTED]¹⁰⁵

95. Ms. Sheehy also testified that Pixar [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁰⁶

96. Ms. Sheehy also noted [REDACTED]¹⁰⁷ This is another part of the formal pay structure.

97. Pixar, like other Defendant organizations, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁰³ Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 49.

¹⁰⁴ Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 50.

¹⁰⁵ Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 78.

¹⁰⁶ Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 88.

¹⁰⁷ Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 136.

108

VI. Issues of Internal Equity

98. The best-known text in compensation, by Milkovich, Newman and Gerhart (2014), *Compensation*, notes in the glossary under “equity theory,” “A theory proposing that in any exchange relationship (such as employment) the equality of the outcome/input ratios between a person and a comparison other (a standard or relevant person/group) will determine fairness or equity. If the ratios diverge from each other, the person will experience reactions of unfairness and inequity”.¹⁰⁹ Issues of equity are clearly important not only in setting up the original structure of a compensation system but also when managing it.

99. There is substantial evidence that issues of internal equity and pay fairness were important to Defendant firms.

100. **Adobe:** There is evidence that Adobe followed principles of internal equity. For example,

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁰⁸ Email from Lori McAdams, Pixar, November 17, 2006, LUCAS00184664, exhibit 122.

¹⁰⁹ Milkovich, Newman and Gerhart (2014), page 680.

¹¹⁰ [REDACTED]

101. An additional mention of internal equity at Adobe is in the deposition of Mr. Digby Horner, Adobe's Senior Vice President of Engineering. In reference to an email exchange he had with colleagues that discussed the [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED],¹¹²

102. Similarly, in 2008, Senior Vice President of Global Human Resources Donna Morris sent a message with [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹¹³

103. Ms. Morris also references internal equity in [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED],¹¹⁴

¹¹¹ Email from Ms. Jocelyn Vosburgh, Adobe, October 25, 2010, ADOBE_011976-7, exhibit 1250.1-2.

¹¹² Deposition of Mr. Digby Horner, Adobe, March 1, 2013, page 200.

¹¹³ Email of Ms. Donna Morris, Adobe, January 18, 2008, ADOBE_009425, exhibit, 2501.1.

¹¹⁴ Email from Ms. Donna Morris, Adobe, March 4, 2007, ADOBE_005661, exhibit 1158.

104. In a different email, Ms. Morris wrote [REDACTED]

[REDACTED]

[REDACTED]

115

105. In another exchange between Ms. Morris and Adobe's CEO Mr. Narayan, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

116

106. At his deposition, Mr. Narayan was asked about [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

118

107. Ms. Rosemary Arriada-Keiper also [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹¹⁵ Email from Ms. Donna Morris, Adobe, June 5, 2010, ADOBE_019278, exhibit 1159.

¹¹⁶ Email of Ms. Donna Morris, Adobe, June 13, 2011, ADOBE_9652, exhibit 1160.

¹¹⁷ Email of Mr. Shantanu Narayan, Adobe, June 14, 2011, ADOBE_9652, exhibit 1160.

¹¹⁸ Deposition of Mr. Shantanu Narayan, Adobe, February 28, 2013, page 319.

¹¹⁹ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 122.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹²⁰

108. **Apple:** There is evidence that Apple followed principles of internal equity.

Mr. David Alvarez, Apple Recruiting Manager, testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹²²

109. Former recruiter Darrin Baja testified that [REDACTED]

[REDACTED]¹²³

110. Mr. Baja was asked [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹²⁴

111. In an email message [REDACTED]

[REDACTED]

¹²⁰ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, pages 124-5.

¹²¹ Deposition of Mr. David Alvarez, Apple, March 5, 2013, page 30.

¹²² Deposition of Mr. David Alvarez, Apple, March 5, 2013, page 30.

¹²³ Deposition of Mr. Darrin Baja, Apple, March 1, 2013, page 43.

¹²⁴ Deposition of Mr. Darrin Baja, Apple, March 1, 2013, page 44.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 126

112. Internal equity is also discussed by Director of Executive Recruiting Mr. Richard Bechtel, although he noted [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 129

113. There is other information at Apple that indicated that internal comparisons and equity mattered. Former recruiter Patrick Burke, was asked [REDACTED]

[REDACTED]

¹²⁵ Email from Mr. Rob York, Apple, on December 17, 2010, 231APPLE039427, exhibit 1376.2.

¹²⁶ Deposition of Mr. David Alvarez, Apple, March 5, 2013, page 208.

¹²⁷ Deposition of Mr. Richard Bechtel, Apple, March 7, 2013, page 40.

¹²⁸ Deposition of Mr. Richard Bechtel, Apple, March 7, 2013, pages 43-4.

¹²⁹ Deposition of Mr. Richard Bechtel, Apple, March 7, 2013, page 44.

115. Apple's Senior Director of Compensation Mr. Steve Burmeister was asked [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹³⁵

116. There are two other issues related to this issue in an Apple document. A document notes [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹³⁶

117. **Google**: There is evidence that Google followed principles of internal equity. For example, [REDACTED]

¹³⁴ Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 63.

¹³⁵ Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, pages 63-4.

¹³⁶ [REDACTED], 231APPLE105345, exhibit 1856.4.

[REDACTED]

[REDACTED].¹³⁷

118. Another Google document is related to equity issues. Figure 7 is [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

119. The figure reflects [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

120. The preceding example is a structured situation that shows that issues of equity need not immediately lead to compensation changes. However, equity can have serious and large implications for compensation over short, but not immediate, periods of time.

¹³⁷ [REDACTED], GOOG-HIGH-TECH-00036302, exhibit, 1606.16.

¹³⁸ [REDACTED] 29 October 2007, exhibit, 1609.10.
¹³⁹ [REDACTED] 29 October 2007, exhibit, 1609.10.
¹⁴⁰ [REDACTED] 29 October 2007, exhibit, 1609.10.

121. There is a reference to internal equity in [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED],¹⁴¹

122. In another Google document [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED],¹⁴²

123. There is also evidence of this from other Defendants [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]¹⁴³

124. Mr. Okamoto was asked [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

¹⁴¹ Email from Tiffany Wu, September 7, 2007, Goog-High-Tech-00473658, exhibit 1613.

¹⁴² [REDACTED] GOOG-HIGH-TECH-00474908, exhibit 1618.12.

¹⁴³ Email from Mr. Ron Okamoto, Apple, September 17, 2010, 231APPLE099371, exhibit 1130.1.

takes them into a range, for example, or directly managing people and these may be individual contributor jobs”.¹⁴⁴

125. **Intel:** There is evidence that Intel followed principles of internal equity. For example, in [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED],¹⁴⁷

126. Another Intel [REDACTED]

[REDACTED]

[REDACTED].¹⁴⁸

127. Likewise, the document titled [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁴⁴ Deposition of Mr. Ron Okamoto, Apple, February 27, 2013, page 135.

¹⁴⁵ [REDACTED] 76583DOC00388, exhibit 392.3.

¹⁴⁶ P [REDACTED], 76583DOC00388, exhibit 392.5.

¹⁴⁷ [REDACTED], 76583DOC00388, exhibit 392.5.

¹⁴⁸ [REDACTED] 76583DOC008097_000003, exhibit 397.3.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁴⁹

128. A document referencing internal equity is a spreadsheet [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁵¹

129. A PowerPoint discussing [REDACTED]

[REDACTED]

¹⁴⁹ Document, [REDACTED]

[REDACTED] exhibit 398.8.

Intel spreadsheet 76579DOC005152_000017.

¹⁵¹ [REDACTED], 765825DOC001211, exhibit 400.17.

[REDACTED]

[REDACTED]¹⁵²

130. An Intel document from 2008 questioned, [REDACTED]

[REDACTED]¹⁵³

131. Similarly, in a document called [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁵² [REDACTED], 765825DOC001211, exhibit 400.17.

¹⁵³ [REDACTED], 76596DOC017025, exhibit 781.16.

¹⁵⁴ [REDACTED], Feb 26, 2001. 76583DOC003753, exhibit 391.4.

¹⁵⁵ [REDACTED], Feb 26, 2001. 76583DOC003753, exhibit 391.4.

¹⁵⁶ Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 202.

135. Ms. Conrad testified that [REDACTED]

[REDACTED]¹⁵⁸

136. Ms. Conrad also testified about [REDACTED]

[REDACTED]¹⁵⁹

137. CEO Paul Otellini noted in an email, [REDACTED]

138. Ms. Renee James, Manager of Intel's Software Services Group, testified that [REDACTED]

[REDACTED] to grade,

¹⁵⁷ Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 204.

¹⁵⁸ Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 204-5.

¹⁵⁹ Deposition of Ms. Deborah Conrad, Intel, November 21, 2012, page 50.

¹⁶⁰ Email from Mr. Paul Otellini, Intel, January 22, 2010, 76616DOC012164, exhibit 478.1.

¹⁶¹ Deposition of Ms. Renee James, Intel, March 22, 2013, pages 242-3.

[REDACTED]

[REDACTED]

[REDACTED]

139. Intel Vice President of Human Resources Ms. Patricia Murray also testified about

[REDACTED]

[REDACTED]

[REDACTED]¹⁶³

140. Intel Compensation and Benefits Specialist Daniel McKell explained his understanding of [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁶⁴.

141. Mr. McKell testified about [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁶⁵

142. In a 2005 email, Mr. McKell wrote: [REDACTED]

[REDACTED]

[REDACTED]

¹⁶² Deposition of Ms. Renee James, Intel, March 22, 2013, page 244.

¹⁶³ Deposition of Ms. Patricia Murray, Intel, February 14, 2013, page 40.

¹⁶⁴ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 207.

¹⁶⁵ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 210.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁶⁷

143. In reference to the same e-mail, [REDACTED]

[REDACTED]

[REDACTED]¹⁶⁸

144. Mr. McKell also testified about Intel's [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

145. Mr. McKell explained, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁶⁶ Email from Danny McKell, Intel, February 2005, 76657DOC004599, exhibit 2033.

¹⁶⁷ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 227.

¹⁶⁸ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 228.

¹⁶⁹ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 100.

¹⁷⁰ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 188.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁷²

146. In my view it is certainly easily possible for organizations to have both a pay for performance system in place, while simultaneously stressing equity and related concepts. In fact, Intel's Daniel McKell testified [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁷³

147. **Intuit:** There is evidence that Intuit followed principles of internal equity. For example, Director of Talent Acquisition Chris Galy testified about [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁷¹ Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 189.

¹⁷² Deposition of Mr. Daniel McKell, Intel, March 20, 2013, page 190.

¹⁷³ Deposition, Mr. Daniel McKell, Intel, March 20, 2013, pages 269-70.

[REDACTED]

[REDACTED] 174

148. Another example that the pay of one person mattered relative to that of another is included in this testimony from Mr. Galy: Q. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁷⁴ Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 180-1.

¹⁷⁵ Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 194-5.

¹⁷⁶ Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 195.

¹⁷⁷ Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 195-6.

149. An email Mr. Galy forwarded also [REDACTED]. That email stated:

[REDACTED]

[REDACTED]¹⁷⁸

150. An Intuit document titled “Talent Acquisition Hiring Plan” also noted [REDACTED]

[REDACTED]

[REDACTED]¹⁷⁹

151. There is also mention of [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁸⁰

152. An additional Intuit document [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁸¹

153. **Lucasfilm**: There is evidence that Lucasfilm followed principles of internal equity. For example, Lucasfilm Senior Manager, Compensation Michelle Maupin was asked

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁸²

¹⁷⁸ Email from Mr. Chris Galy, Intuit, March 3, 2010, INTUIT_039793, exhibit 2142.1.

¹⁷⁹ [REDACTED], exhibit 1107.2.

¹⁸⁰ [REDACTED], INTUIT_043560, exhibit 2739.31.

¹⁸¹ [REDACTED], INTUIT_052841, exhibit 2740.16.

¹⁸² Deposition of Ms. Michelle Maupin, February 12, 2013, page 85.

154. Ms. Maupin also testified, [REDACTED]

[REDACTED]

[REDACTED],¹⁸³

155. Ms. Maupin was asked, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED],¹⁸⁴

156. In her declaration, Ms. Maupin also noted [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁸⁵

157. Ms. Michelle Maupin stated by email: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED],¹⁸⁶

158. In questioning related to an email from Ms. Maupin to Chief Administrative Officer Jan van der Voort where Ms. Maupin wrote, [REDACTED]

¹⁸³ Deposition of Ms. Michelle Maupin, February 12, 2013, page 175.

¹⁸⁴ Deposition of Ms. Michelle Maupin, February 12, 2013, page 178.

¹⁸⁵ Declaration of Ms. Michelle Maupin, January 17, 2013, page 9.

¹⁸⁶ Email from Ms. Michelle Maupin, November 4, 2010, LUCAS00198130, exhibit 729.1.

[REDACTED]
[REDACTED],¹⁸⁸

159. In another situation at Lucasfilm, [REDACTED]
[REDACTED]
[REDACTED]¹⁸⁹

160. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED],¹⁹⁰

161. Senior Director of Human Resources Sharon Coker discussed [REDACTED] in
her [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]¹⁹¹

162. Ms. Coker was asked, [REDACTED]
[REDACTED]
[REDACTED]

¹⁸⁷ Email from Ms. Michelle Maupin to Jan van der Voort, May 8, 2008, LUCAS00201069, exhibit 727.3.

¹⁸⁸ Deposition of Ms. Michelle Maupin, February 12, 2013, page 182.

¹⁸⁹ Email from Ms. Jan van der Voort, July 9, 2007, LUCAS00060705, exhibit 728.1.

¹⁹⁰ Deposition of Ms. Jan van der Voort, February 5, 2013, page 200.

¹⁹¹ Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 259.

¹⁹² Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 259-60.

[REDACTED]

[REDACTED]¹⁹³

163. Ms. Coker also noted in her deposition, [REDACTED]

[REDACTED]

[REDACTED]¹⁹⁴

164. Ms. Coker testified about internal equity: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁹⁵

165. There are multiple references to [REDACTED]

[REDACTED]¹⁹⁶

166. [REDACTED]

[REDACTED]¹⁹⁷

167. [REDACTED]

[REDACTED]¹⁹⁸

168. **Pixar:** There is also evidence that Pixar followed principles of internal equity. In her deposition, Pixar Vice President of Human Resources Lori McAdams was asked, [REDACTED]

¹⁹³ Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 260.

¹⁹⁴ Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 245.

¹⁹⁵ Deposition of Ms. Sharon Coker, LucasFilm, November 1, 2012, page 283.

¹⁹⁶ Email from Ms. Vanessa Hall, February 14, 2011, LUCAS00199905-6.

¹⁹⁷ Compensation Analysis and Review Process, Internal Transfer, DRAFT Last Updated 11-23-04, LUCAS00185312, exhibit 716.

¹⁹⁸ Powerpoint, Lucasfilm Ltd. Compensation Project Status Executive Review, Lucasfilm, December 7, 2006, LUCAS00027982, exhibit 359.4.

A horizontal bar chart with 10 bars of varying lengths, all colored black. The bars are arranged in a descending order of length from top to bottom. The first bar is the longest, followed by a slightly shorter one, then a medium-length bar, and then several shorter bars of varying lengths, with the last bar being the shortest. The bars are separated by small gaps.

VII. Internal Equity and Pay for Performance Are Not Mutually Exclusive

170. In this section I discuss the issues of pay for performance and internal equity. Both pay and performance and internal equity are often-discussed in the realm of compensation. I discuss here that it is possible to have a compensation system that is simultaneously consistent with pay for performance and also with internal equity.

171. The Google Figure 7 is quite interesting since it is an example in one space where one can see a system that reflects both “pay for performance” and equity concerns at the same time. [REDACTED]

Clearly (a) is consistent with pay for performance. But (b) is also consistent with equity and moving compensation levels together.

¹⁹⁹ Deposition of Ms. Lori McAdams, August 2, 2012, page 32.

²⁰⁰ Deposition of Ms. Stephanie Sheehy, Pixar, March 5, 2013, page 151.

172. Adobe also has information that is very similar to the Google Figure 7. In Figure 8, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

173. I found what appears to be similar information at Apple. In an Apple document²⁰³

[REDACTED]
[REDACTED]
[REDACTED]

174. From a different Adobe [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

²⁰¹ [REDACTED],
ADOBE_100614, exhibit 2487.15.

²⁰² Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 165.

²⁰³ [REDACTED] 231APPLE095052, exhibit 1855.107.

²⁰⁴ Deposition of Mr. Steven Burmeister, Apple, March 15, 2013, page 122.

²⁰⁵ [REDACTED] exhibit 2486.33.

²⁰⁶ Deposition of Ms. Rosemary Arriada-Keiper, Adobe, March 28, 2013, page 96.

[REDACTED]

[REDACTED]

175. Intel also has a document that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

176. So there is direct evidence of compatibility between principles of internal equity and pay-for-performance that I found from four of the Defendant companies [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

177. There is also evidence of this from other Defendants [REDACTED]

[REDACTED]

[REDACTED]

207 [REDACTED], exhibit 2486.33.

208 [REDACTED], 765825DOC001211, exhibit 400.17.

209 [REDACTED], 765825DOC001211, exhibit 400.17.

[REDACTED]

[REDACTED]²¹⁰

178. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²¹¹.

179. It can be shown that pay and performance and issues of equity are not mutually exclusive in other ways. Consider two employees in a work group who are both paid a base salary and a “commission” or piece-rate for some level of output (say sales of some item such as a book or car). Arranging the system so that appropriately grouped workers have similar base salary and commission rate is certainly equitable. At the same time, this compensation system has a pay for performance component.

VIII. How Restricting Cold Calling Can Restrict Information and Pay

180. Restricting cold calling can clearly restrict information and pay. In many markets, employees are hired due to cold calls.²¹²

181. Note the views of the court in this case. “As the documentary evidence above demonstrates, there is compelling evidence that in the absence of the anti-solicitation agreements, Defendants would have had to make structural preemptive or reactive changes”.²¹³

²¹⁰ Email from Mr. Ron Okamoto, Apple, September 17, 2010, 231APPLE099371, exhibit 1130.1.

²¹¹ Deposition of Mr. Ron Okamoto, Apple, February 27, 2013, page 135.

²¹² There is a difference between an organization’s product market competitors and its labor market competitors. Some organizations may not compete in the market for goods and services. Nevertheless, they may hire from among the same pool of workers.

²¹³ Order by Judge Lucy H. Koh, Case5:11-cv-02509-LHK Document531 Filed10/24/13, page 74.

“The question presented by this case is not whether Defendants’ anti-solicitation agreements had an impact on any employees. Defendants concede that some employees may have been impacted. *See* Tr. at 144:11-12 (‘And I admit at the start, we are not saying that nobody was impacted.’).”²¹⁴

182. In the instance of this case, the Defendant firms limited the market for the employees by restricting cold calling. This clearly led to what would otherwise be higher levels of compensation for some of those in the firms, except that the restrictions were in place.

183. This situation of lower levels of compensation for some can directly lead to lower levels of others due to the very nature of the formalized pay systems in place at the Defendants. This is even more likely among the Class members here, who worked for a Defendant while that Defendant participated in at least one “no cold-call” agreement with another Defendant.

184. The formalized systems in place at the Defendants relied on structures, external data from the market and the like, and notions of equity were present at Defendants. As a result, those effects cycle on to other employees and their levels of compensation. Therefore, the formal compensation structures provided propagation mechanisms to translate effects broadly.

185. In a very strict simple supply and demand model, with perfect competition and immediate complete information, prices of all sorts can adjust immediately. But many markets don’t hold all of these characteristics or behave this way. Some economists discuss the idea that workers are paid their value at any given time. But we know of many instances where pay changes at discreet moments and surely this is not always coincident with discreet changes in productivity.

186. An example of this is when someone gets a raise at a point in time or when he or she changes jobs for a higher level of compensation or when, in response to new information,

²¹⁴ Order by Judge Lucy H. Koh, Case5:11-cv-02509-LHK Document382 Filed04/05/13, page 13.

compensation levels change. Take for example the email from Mr. Arnon Geshuri from Google where he notes [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

187. An additional example of a rapid change in compensation due to new information comes from Intuit. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

²¹⁵ GOOGLE-High_Tech-00379327, exhibit 614, email from Mr. Arnon Geshuri on Saturday March 15, 2008.

²¹⁶ GOOGLE-High_Tech-00379327, exhibit 614, email from Mr. Arnon Geshuri on Saturday March 15, 2008.

[REDACTED]

[REDACTED]²¹⁷

188. Again, not all markets react immediately since information is not always perfect to all parties to a transaction. In fact, due to issues of internal comparisons, sometimes individuals are hired from the outside (for example) and have relatively higher levels of compensation than others in their workgroup, even once performance is taken into account. As a result, they may see slower growth of pay, relative to others in a similar job as a way to bring compensation together. This is an interesting issue and suggests that issues of internal equity are not necessarily immediately solved. That is, whether bringing in a new person with a higher wage to a new workgroup or raising the wage of someone in a work group does not necessarily mean that the levels of compensation of everyone else need be raised immediately also. Equity in this sense does not mean that all needs to immediately adjust. But equity can still be an issue for the organization that it can solve over time.

IX. How A Structured Compensation System Can Be Related to Systematic Compensation Effects

189. A structured compensation system of the type I have described here can lead to systematic pay effects. In fact, entire pay systems can change at once and everyone can be affected. The concept of equity is related; this is common in the compensation area and widely known by practitioners who design pay systems in organizations.

190. In a recent book (Hallock, 2012), I wrote about what is known as “equity theory,” among a set of psychological theories that are important to compensation. I wrote, “The idea behind equity theory (Adams, 1965) is that workers will be motivated when their perceived inputs (e.g. effort) match their perceived outputs (e.g. pay). If someone thinks she is being

²¹⁷ Deposition of Mr. Alex Lintner, Intuit, March 25, 2013, pages 107-8.

unfairly paid (e.g. others are being paid more for the same perceived effort), she will become uncomfortable and unmotivated”.²¹⁸

191. Milkovich, Newman and Gerhart (2011) also discuss equity and fairness.²¹⁹ In fact, issues related to internal equity are one important reason organizations set up internal pay structures as discussed above.

192. Milkovich, Newman and Gerhart (2011) note that “the research suggests that employers judge the fairness of their organization’s internal pay structure by making multiple comparisons” including “comparing to jobs similar to their own,” “comparing their jobs to others at the same employer,” and “comparing their jobs’ pay against external pay levels”.²²⁰

193. Google’s “big bang” compensation increase is an important example of how a stimulus that may appear on its face to affect only a subset of employees, affected all employees. In this example, all employees of Google were given an instantaneous raise of 10%. Google’s former Senior Vice President of People Operations (HR) Ms. Shona Brown notes [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²²¹

194. Other organizations commonly move the entire pay structure all at once, often at least annually. One example of this is displayed in Figure 12 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

²¹⁸ Hallock (2012), page 121.

²¹⁹ See Milkovich, Newman and Gerhart (2011), page 83.

²²⁰ Milkovich, Newman and Gerhart (2011), page 83.

²²¹ Deposition of Dr. Shona Brown, Google, January 30, 2013, page 232.

[REDACTED]

195. If it is the case, in a particular organization or organizations, that those at the top of a pay scale help determine the relative gains of those “below” them, then restricting the pay of those at the top of a grid necessarily affects those below.

X. Market Data and Compensation Surveys

196. Using data on compensation levels at other organizations is regularly a part of formalized pay systems. The kinds of data that firms collect can include market data on particular jobs and salary increase surveys.

197. Each of the Defendants used at least one form of data that included information on compensation at other organizations. For example at: (1) Adobe: Mr. Bruce Chizen, Adobe’s President and CEO from 2000 to 2007 indicated, [REDACTED]²²² (2) Apple: Mr. Mark Bentley, Apple’s Senior Director of Recruiting said, [REDACTED]
[REDACTED]²²³ (3) Google: Former Senior Vice President of Engineering Mr. Alan Eustace said, [REDACTED]
board of what other companies are paying particular people.”²²⁴ (4) Intel: Ms. Patricia Murray, former Vice President of Human Resources (1996 – 2012) indicated, [REDACTED]
[REDACTED]²²⁵ (5) Intuit: Vice President of Human Resources Mr. Mason Stubblefield said, [REDACTED]
[REDACTED]

²²² Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 97.

²²³ Deposition of Mr. Mark Bentley, Apple, August 23, 2012, page 262-3.

²²⁴ Deposition of Mr. Alan Eustace, February 2013, page 132.

²²⁵ Deposition of Ms. Patricia Murray, Intel, February 14, 2013, pages 15.

„228

XI. Examples of How Market Pressure Led to Pay Changes at Defendants

201. There are clear examples of how pay changed at some Defendants. I will discuss a few examples here, including how market pressure led to pay changes at Defendants.

202. One example is from Adobe. Mr. Chizen, commenting on his time as CEO, noted, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²³⁰.

203. Another example is from Google. Google has provided [REDACTED]
[REDACTED] and I will discuss only a few here. For
example, I start with [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²³²

²²⁹ Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 100.

²³⁰ Deposition of Mr. Bruce Chizen, Adobe, March 15, 2013, page 101.

²³¹ GOOG-HIGH-TECH-00625148 Contains a courtesy reproduction of a compensation spreadsheet [REDACTED]

²³² Exhibit 1600.1 [REDACTED]

204. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²³³.

205. Multiple comparisons are easily made from these data. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

206. In fact, Google was explicit in changing its salary structure at one point in time and did so universally with the “big bang” in which it increased salaries by 10% across the board.

207. Google documents report [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²³⁴.

208. Google employee Anuj Chandarana increased the estimated costs of this salary change, noting in an email: [REDACTED]

[REDACTED]

[REDACTED]²³⁵

²³³ GOOG-HIGH-TECH-00625148 Contains a courtesy reproduction of a compensation spreadsheet titled 2005 Global Ranges - for MQU May-06.xls and Exhibit 1600.1 “Google 2004 Salary Ranges”.

²³⁴ Deposition of Mr. Frank Wagner, Google, March 7, 2013, page 216.

²³⁵ Email from Anuj Chandarana, Google, December 2, 2010, exhibit 1629.

209. At Lucasfilm Ms. Micheline Chau testified that [REDACTED]

[REDACTED] 236

210. Ms. Chau clarified, [REDACTED]

[REDACTED] 237

211. Data from Lucasfilm also [REDACTED]

[REDACTED] 238

212. In 2008 there are [REDACTED]

213. Further at Lucasfilm, [REDACTED]

214. In addition, at Lucasfilm, [REDACTED]

²³⁶ Deposition of Ms. Michelene Chau, Lucasfilm, February 21, 2013, page 126.

²³⁷ Deposition of Ms. Michelene Chau, Lucasfilm, February 21, 2013, page 127.

²³⁸ LUCAS00188913 (Exhibit 711.29) for 2008 and LUCAS00188912 (exhibit 360) for 2006.

²³⁹ LUCAS00188913 (Exhibit 711.29) for 2008 and LUCAS00188912 (exhibit 360) for 2006.

[REDACTED]

[REDACTED]

215. Finally, at Lucasfilm, [REDACTED]

216. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

XII. Agreements of the Kind Described in this Case Could Limit Recruiting and Have Negative Consequences on Compensation for Employees of Defendant Firms

217. In this section I will discuss more about how the no cold-calling agreements could have negative consequences for employees, not only for those directly affected by the no cold-calling but also for nearly all other Class members at the Defendant firms.

218. Cold calling is an important part of recruiting in some industries. In fact, in some types of jobs, a large majority of the jobs are filled through this method.

219. At the same time, many employees can see their salaries increase and stay at their current employers by using a competing offer (or even the threat of a competing offer). This is true in many industries.

²⁴⁰ Deposition of Ms. Stephanie Sheehy, March 5, 2013, page 106.

²⁴¹ Deposition of Ms. Stephanie Sheehy, March 5, 2013, page 106-7.

²⁴² Deposition of Ms. Stephanie Sheehy, March 5, 2013, page 107.

220. Restricting cold-calling can have negative consequences for the compensation of those who are cold called or could be cold called, and potentially for nearly all others in their organization.

221. A consideration in this case is that the Defendants are very well-known, celebrated companies. For many reasons these could be thought of as “employers of choice”. By having restrictive recruiting practices at these firms and for those employees of those firms who were highly coveted by other employees, there could be negative consequences for pay and pay growth.

222. To the extent that there is an internal salary structure, any restriction at the top could have a consequent cascading effect on those below. Taking the example of Figure 2, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

223. There is evidence in economics and in other areas that fairness in wage setting and considerations of peers in compensation matters (e.g. Levine, 1993 and Card, Mas, Moretti, and Saez, 2012).

224. There is substantial evidence from each of the Defendants that fairness and equity considerations mattered.

225. In addition, it is not only the case that those who are paid at the “top of the box” are the ones who are being cold called. In the absence of any cold-calling restrictions or agreements, any employee can be cold called. Even if cold calling affecting pay is restricted at

the mid-point, for example, due to the nature of the structure and use of external data, there can be negative compensation consequences for even those who would not have been cold-called.

226. I also note that no workers have to move from one company to another for no-cold-call agreements to have a negative effect on compensation. This is plain to see. If a recruiter working for company X calls and asks an employee of firm Y of her potential interest in moving, her compensation can't go down and may go up if she can use any potential or realized offer to bid up her own pay internally. So even if not a single employee moves, cold-calling agreements could have negative consequences for pay and pay growth.

227. It should also be noted that performance is not always as easily measured as some argue. In fact, performance is sometimes very hard to measure and social scientists have devised ways to consider compensation in interesting ways precisely because performance is difficult to measure in some situations.²⁴³

228. Intuit also provides an example on competition. In a PowerPoint presentation, Intuit noted: [REDACTED]²⁴⁴.

229. Also at Intuit, Mr. Chris Galy was asked, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

²⁴³ See for example, Lazear and Rosen (1981).

²⁴⁴ [REDACTED] INTUIT_034255, exhibit 2135.25.

²⁴⁵ Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 165.

[REDACTED]

[REDACTED]

[REDACTED]²⁴⁶

XIII. Given the Defendants' Formalized Pay Structures and Compensation Design, Effects on Compensation Could be Widely Felt

230. Given the Defendants' formalized pay structures, compensation design, use of external market data, and adherence to principles of equity and fairness, the effects on compensation connected to the do-not-call agreements can be widespread and systematic.

231. Elsewhere in this report, it is documented that the Defendant firms had formalized compensation systems. It is also documented that the Defendant firms were interested in internal equity and issues of fairness. It is also documented how pay changed at Defendant companies. A direct impact on pay could occur if an employee did not receive a cold call, or if the upward wage pressures on any of the employees in related groups or job families were disrupted.

232. One way that pay can be lowered at Defendant firms for nearly all Class members has to do with the "top" workers. The Defendants were very interested in attracting and retaining many extraordinary workers. The Defendant firms include very well-known and prestigious brands for employees. Some of the cold-calling restrictions were clearly targeted to this very high-end type of worker. I have shown previously that it is straightforward to show that cold-calling can have a direct impact on individual workers. If the "top of the box" is, therefore, lowered in the presence of cold-calling restrictions, the entire box may be as well, thus affecting nearly all other Class members. But, again, the restrictions need not only affect the highest paid workers for calling restriction to have effects on others.

²⁴⁶ Deposition of Mr. Chris Galy, Intuit, March 20, 2013, page 166.

233. There are many other ways in which restrictions on cold calling could lead to suppression of pay on Class members here, including effects due to internal equity within specific work groups, effects due to equity concerns across different work groups, the use of market survey data on pay levels, the use of salary budget increase surveys, and the compensation budget planning process.

234. Internal equity concerns can impact compensation, even among those who may not otherwise be cold-called during a period of time, due to relative comparisons. To the extent that organizations are concerned with principles of internal equity, if a particular employee or group of employees is not called due to cold-calling restrictions, there will be less pressure on the compensation of similar workers.

235. Equity concerns can apply beyond specific work groups or occupations or types of jobs. As a result, restrictions on the compensation of workers in one job type can lead to suppression in other jobs.

236. Another way in which wages can be influenced is external market data. Here, there is evidence that Defendants benchmark their data to external sources. But here, to the extent that pay is lowered at other firms through anti-competitive behavior, the market data they use for their own structure will be lower. And, as a result, their own pay levels will be lower than they would be in the absence of such agreements.

237. Another way organizations such as Defendants use market data is in considerations of the size of the next period's (e.g. year) raise pool. So, in addition to collecting data (for example) on the pay levels in specific jobs, firms also seek information from market data on salary budgets that other organizations are planning.²⁴⁷ To the extent that other firms are

²⁴⁷ These data can be collected from consulting firms who aggregate data but there is evidence that some Defendants reached out directly to other Defendants. For example, [REDACTED]

planning smaller increases due to restrictions on cold-calling, these estimates will be benchmarked downward due to the restrictions.

238. An additional way that anti-competitive behavior by Defendants could impact compensation is through the related budget-planning process. When organizations consider the pool of resources for increasing compensation in the next period (e.g. year), they can consider a host of information, including market survey data, market budget compensation increase data, external economic conditions, employee turnover and other pressures. To the extent that market pressure is lower, there is less pressure to have larger compensation increase budgets.

239. Relatedly, yet another way restrictions on cold-calling could lead to effects on those beyond those who would have otherwise immediately been cold-called arises because of Defendants' practice of targeting compensation at a certain market level of pay. In the absence of external pressure related to restrictions, organizations will be under less pressure to increase this target percentage. An example that is related comes from Lucasfilm where Ms. Micheline Chau testified that over time Lucasfilm changed its payment targets from the 50th percentile to 65th percentile of the external market benchmark.²⁴⁸ Ms. Chau said, "The 65th, again, like I said, depending on the industry circumstance, sometimes was in the – sometimes it was the 65th for critical talent, and when economic conditions didn't need it, it came back down to the 50th."²⁴⁹

(GOOG-HIGH-TECH-00336878, exhibit 621.3).

(Deposition of Mr. Mark Bentley, Apple, August 23, 2012, pages 262-3).

²⁴⁸ Deposition of Ms. Michelene Chau, Lucasfilm, February 21, 2013, page 126.

²⁴⁹ Deposition of Ms. Michelene Chau, Lucasfilm, February 21, 2013, page 127.

XIV. Conclusions

240. Based on the documents I have considered and my knowledge of labor markets and compensation systems I have a number of conclusions. These views are expressed in the report and some are summarized here.

241. The Defendants had formalized compensation systems. These include using market surveys, survey data, clear structures, grades, and many other features of formalized compensation systems.

242. The Defendants made use of the ideas of compensation beyond salary. These other forms of compensation include components such as bonuses and stock.

243. Issues of internal equity and equity in general were important to the Defendant firms. Whether they used the terms or not, the concepts of internal equity and also generally treating similar employees similarly were important to Defendant firms.

244. There is documented evidence that pay moved in Defendant firms in systematic and structured ways.

245. A compensation system that includes pay for performance is not mutually exclusive from one that takes internal equity into account.

246. Restrictions on cold-calling clearly had impacts on employees among the Defendant firms. In particular, restrictions on cold-calling hampered compensation levels for employees. The restrictions could be expected to hamper levels of compensation for those who would have been cold-called and for all or nearly all Class members of Defendant firms.

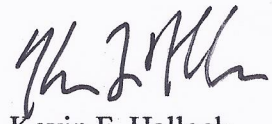
247. Restrictions on cold-calling could be expected to limit and have negative consequences on employee compensation for those Class members directly involved and for nearly all Class members. Given the formalized pay structures, use of external market data, and

compensation design in Defendant firms, nearly all Class Members could be expected to have pay that would otherwise be higher.

248. The formalized systems in place at the Defendants relied on structures, external data from the market and the like, and notions of equity were present at Defendants. As a result, those effects cycle on to other employees and their levels of compensation. Therefore, the formal compensation structures could be expected to lead to an effect on nearly all Class members.

249. Although I have not been asked to estimate the magnitude of damages in this case, based on my knowledge of compensations systems and the materials considered, I believe that agreements against cold calling, such as the agreements at issue in this case, are predicted to suppress the compensation of all or nearly all Class members, including those with different job titles.

250. I reserve the right to supplement this report in view of any new material or information provided to me after the date of this report.



Kevin F. Hallock

October 27, 2013

APPENDIX A

Kevin F. Hallock CV

KEVIN F. HALLOCK

October 2013

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Born: March 10 1969, Palo Alto, CA
Married: Tina Hallock in 1991
Children: Emily 1994, Tyler 1998

CURRENT POSITIONS

Donald C. Opatrny '74 Chair of the Department of Economics, Cornell University (2012 – present)

Joseph R. Rich '80 Professor, Cornell University (2011 – present)

Professor, Department of Economics, Cornell University (2011 – present)

Professor, Department of Human Resource Studies, Cornell University (2007 – present)

Director, Institute for Compensation Studies (ICS), Cornell University (2009 – present)

Fellow, National Academy of Human Resources (NAHR), (2013 – present)

Compensation Committee Member, Guthrie Health, Sayre PA (2012 – present)

Research Associate, Labor Studies, National Bureau of Economic Research (2003 - present)

Member, Board of Directors of Society of Certified Professionals, WorldatWork (2012 - present)

Faculty Fellow, Atkinson Center for a Sustainable Future (ACSF), (2012 – present)

Distinguished Principal Researcher, The Conference Board (2011 – present)

Fellow, Stanford University Center for the Study of Poverty and Inequality (2006 – present)

Faculty Affiliate, Center for the Study of Inequality, Cornell University (2007 – present)

EDUCATION

Princeton University – Ph.D. Economics, 1995.

Princeton University – M.A. Economics, 1993.

University of Massachusetts at Amherst – B.A. Economics, *Summa Cum Laude*, 1991.

Hopkins Academy, Hadley Massachusetts, Valedictorian, 1987.

OTHER AND PREVIOUS POSITIONS

Chair, Department of Labor Economics, Cornell University (2010 – 2011)

Associate Chair, Department of Economics, Cornell University (2011 – 2012)

Professor, Department of Labor Economics, Cornell University (2007 – 2011)

Chair, Cornell University Financial Policy Committee (2007 – 2008)

Director of Research, Center for Advanced Human Resource Studies (CAHRS), Cornell University (2007 – 2012)

Senior Fellow, Executive Compensation, Board Compensation and Board Practices, The Conference Board (2008 – 2011)

House Fellow, Carl Becker House, Cornell University (2011 – 2013)

Member, Board of Directors, WorldatWork (2009 – 2011)

Member, WorldatWork Executive Compensation Advisory Board (2007 – 2009)

Faculty Member, Graduate Field of Economics, Cornell University (2005 - present)

Faculty Member, Graduate Field of Industrial & Labor Relations, Cornell University (2006 – present)

Associate Professor of Human Resource Studies, ILR School, Cornell University (2005 - 2007)

Acting Chair, Department of Human Resource Studies, ILR School, Cornell University (Fall 2006)

Associate Professor of Economics and of Labor and Industrial Relations, University of Illinois at Urbana-Champaign (2001 – 2005)

Associate Professor of Finance, University of Illinois at Urbana-Champaign (2002 – 2005)

Co-Director, Center for Human Resource Management, University of Illinois (2004 – 2005)

Visiting Associate Professor, Institute of Government and Public Affairs, University of Illinois at Urbana-Champaign (2005)

Research Consultant, Research Department, Federal Reserve Bank of Chicago (2003 – 2005)

Visiting Assistant Professor, Department of Economics and Research Associate, Industrial Relations Section, Princeton University (1998 - 1999)

Assistant Professor of Economics and of Labor and Industrial Relations, University of Illinois at Urbana-Champaign (1995 - 2001)

HONORS AND FELLOWSHIPS

Fellow, National Academy of Human Resources (NAHR), 2013

Richard A. Lester Award for Outstanding Book in Industrial Relations and Labor Economics, Princeton University, 2012.

John T. Dunlop Outstanding Young Scholar Award, Industrial Relations Research Association (Now Labor and Employment Relations Association), 2004.

Outstanding Teaching Award (small class), University of Illinois Economics Graduate Student Association, 2001-2002.

Faculty Teaching Excellence Award, University of Illinois Institute of Labor and Industrial Relations, 2000.

Outstanding Teaching Award (small class), University of Illinois Economics Graduate Student Association, 2000-2001.

Albert Rees Prize for Best Dissertation in Labor Economics from Princeton in the Last Six Years (awarded every two years), 1999.

University of Illinois College of Commerce and Business Administration Award for Excellence in Research (first annual Assistant Professor award), 1999.

University of Illinois list of teachers ranked excellent by their students, 1997, 1998, 1999, 2000, 2002.

Princeton University Industrial Relations Section Fellowship, September 1991-May 1995.

United States Department of Education Jacob K. Javits Fellowship, September 1991-May 1995.

Massachusetts William Field Alumni Scholar, 1991.

Phi Beta Kappa, 1990.

Valedictorian, Hopkins Academy, Hadley Massachusetts, 1987.

Paul Brown Senior Baseball Award, Hopkins Academy, Hadley Massachusetts, 1987.

Massachusetts High School State Baseball Champions, 1985. Third base, Hopkins Academy.

BOOKS

Pay: Why People Earn What They Earn and What You Can Do Now to Make More, Cambridge University Press September 2012.

Managing Layoffs: Why Firms Fire Workers and How it Affects the Bottom Line, Cambridge University Press, under contract.

The Economics of Executive Compensation, Volume II, (co-editor with Kevin J. Murphy), Edward Elgar Publishing Limited, Cheltenham, England, 1999.

BOOKS (continued)

The Economics of Executive Compensation, Volume I, (co-editor with Kevin J. Murphy), Edward Elgar Publishing Limited, Cheltenham, England, 1999.

Economic Institutions and The Demand and Supply of Labor: The Collected Essays of Orley Ashenfelter, Volume III, editor, Edward Elgar Publishing Limited, Cheltenham, England, 1997.

Education, Training and Discrimination: The Collected Essays of Orley Ashenfelter, Volume II, editor, Edward Elgar Publishing Limited, Cheltenham, England, 1997.

Employment, Labor Union, and Wages: The Collected Essays of Orley Ashenfelter, Volume I, editor, Edward Elgar Publishing Limited, Cheltenham, England, 1997.

Labor Economics, Volume IV: Labor Market Discrimination, Labor Mobility and Compensating Wage Differentials, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

Labor Economics, Volume III: Unemployment, Trade Unions and Dispute Resolution, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

Labor Economics, Volume II: Employment, Wages and Education, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

Labor Economics, Volume I: Labor Supply and Labor Demand, (co-editor with Orley Ashenfelter), Edward Elgar Publishing Limited, Cheltenham, England, 1995.

PUBLISHED AND FORTHCOMING PAPERS

“Data Improvement and Labor Economics,” *Journal of Labor Economics*, 31(2), Part 2, April 2013, S1-S16.

“Adverse Selection and Incentives in an Early Retirement Incentive Program,” (with Kenneth Whelan, Ronald Ehrenberg and Ronald Seeber), *Research in Labor Economics*, Volume 36, 159-190, 2012.

“Job Loss and Effects of Firms and Workers,” (with Michael Strain and Doug Webber), in Cary Cooper, Alankrita Pandey and James Quick eds. *Downsizing: Is Less Still More?*, Cambridge University Press, 2012.

“New Data for Answering Old Questions Regarding Employee Stock Options,” (with Craig Olson), in *Labor and The New Economy*, Katharine G. Abraham, James R. Spletzer and Michael Harper, editors, National Bureau of Economic Research, 2010.

“Executive Pay and Firm Performance: Methodological Considerations and Future Directions,” (with Beth Florin and Douglas Webber), *Research in Personnel and Human Resources Management*, 2010.

“The Geography of Giving: The Effect of Corporate Headquarters on Local Charities,” (with David Card and Enrico Moretti), *Journal of Public Economics*, April 2010, 94(3), 222 -234.

“CEO Pay for Performance Heterogeneity: Examples Using Quantile Regression,” (with Clayton Reck and Regina Madalozzo), *Financial Review*, February 2010, 1-19.

PUBLISHED AND FORTHCOMING PAPERS (continued)

“Job Loss and the Fraying of the Implicit Employment Contract,” *Journal of Economic Perspectives*, 23(4), Fall 2009, 69-93.

“The Changing Relationship Between Job Loss Announcements and Stock Prices: 1970-1999,” (with Henry Farber), *Labour Economics*, 16(1), January 2009, 1-11.

“Layoffs in Large U.S. Firms from the Perspective of Senior Management,” *Research in Personnel and Human Resources Management*, volume 25, 2006.

“Assessing the Impact of Job Loss on Workers and Firms,” (with Kristin Butcher), *Chicago Fed Letter*, Federal Reserve Bank of Chicago, April 2006.

“Mass Layoffs and Management Turnover,” (with Sherrilyn Billger), *Industrial Relations*, 44(3), July 2005.

“Bringing Together Policymakers, Researchers, and Practitioners to Discuss Job Loss,” (with Kristin Butcher), *Economic Perspectives*, Federal Reserve Bank of Chicago, 2nd Quarter, 2005.

“Does Managed Care Change the Management of Nonprofit Hospitals? Evidence from the Executive Labor Market,” (with Marianne Bertrand and Richard Arnould), *Industrial and Labor Relations Review*, 58(3), April 2005.

“Job Loss: Causes, Consequences, and Policy Responses,” (with Kristin F. Butcher), *Chicago Fed Letter*, Federal Reserve Bank of Chicago, Number 207, October 2004.

“Managerial Pay in Nonprofit and For-Profit Organizations,” in *Improving Leadership in Nonprofit Organizations*, Sarah Smith-Orr and Ron Riggio, editors, Jossey-Bass, 2004, 76 – 101.

“Managerial Pay and Governance in American Nonprofits,” *Industrial Relations*, 41(3), July 2002, 377-406.

“When Unions ‘Mattered’: Assessing the Impact of Strikes on Financial Markets: 1925-1937,” (with John DiNardo), *Industrial and Labor Relations Review*, 55(2), January 2002, 219 - 233.

“Quantile Regression,” (with Roger Koenker), *The Journal of Economic Perspectives*, 15(4), Fall 2001, 143-156.

“The Gender Gap in Top Corporate Jobs,” (with Marianne Bertrand), *Industrial and Labor Relations Review*, 55(1), October 2001, 3-21.

“Individual Heterogeneity in the Returns to Schooling: Instrumental Variables Quantile Regression using Twins Data,” (with Omar Arias and Walter Sosa), *Empirical Economics*, 26(1), March 2001, 7-40. Reprinted in *Economic Applications of Quantile Regression*, Bernd Fitzenberger, Roger Koenker, and Jose A. F. Machado, Editors, Physica-Verlag.

“Compensation in Nonprofit Organizations,” *Research in Personnel and Human Resources Management*, edited by Gerald R. Ferris, Elsevier Science, Volume 19, 2000, 243-294.

PUBLISHED AND FORTHCOMING PAPERS (continued)

“The Timeliness of Performance Information in Determining Executive Compensation,” (with Paul Oyer), *Journal of Corporate Finance*, 5(4), December 1999, 303-321.

“Capital Markets and Job Loss: Evidence from North America,” (with Henry Farber), *Wirtschafts Politische Blatter*, 46(6), December 1999, 573-577.

“Dual Agency: Corporate Boards with Reciprocally Interlocking Relationships,” in *Executive Compensation and Shareholder Value: Theory and Evidence*, edited by Jennifer Carpenter and David Yermack, Kluwer, 1999, 55-75.

“Changing Stock Market Response to Announcements of Job Loss: Evidence from 1970-1997,” (with Henry Farber), *Proceedings of the Industrial Relations Research Association*, May 1999, 26-34.

“Introduction,” in *The Economics of Executive Compensation*, Volume I, (edited by Kevin F. Hallock and Kevin J. Murphy), Edward Elgar Publishing Limited, Cheltenham, England, 1999, pp. ix - xxviii.

“Layoffs, Top Executive Pay, and Firm Performance,” *The American Economic Review*, 88(4), September 1998, 711-723.

“Discrimination by Gender and Disability Status: Do Worker Perceptions Match Statistical Measures?” (with Wallace Hendricks and Emer Broadbent), *Southern Economic Journal*, 65(2), October 1998, 245-263.

“Reciprocally Interlocking Boards of Directors and Executive Compensation,” *Journal of Financial and Quantitative Analysis*, 32(3), September 1997, 331-344. Reprinted in *Governance, Directors, and Boards*, Mahmoud Ezzamel, editor, Edward Elgar Publishing Limited, UK.

“Introduction,” in *Employment, Labor Unions and Wages: The Collected Essays of Orley Ashenfelter*, Volume I, Edward Elgar Publishing Limited, Cheltenham, England, ix – xxii.

“Seniority and Monopsony in the Academic Labor Market: Comment,” *The American Economic Review*, 85(3), June 1995, 654-657.

WORKING PAPERS

“Disabilities, Occupations and Returns to Skills and Tasks,” (with Xin Jin and Linda Barrington), September 2013.

“The Wage Gap and The Total Employment Gap by Disability Status,” (with Xin Jin and Linda Barrington), September 2013.

“Employees’ Choice of Method of Pay,” (with Craig Olson), February 2012.

“Executive Compensation in American Unions,” (with Felice Klein), January 2012.

“Senior HR Leaders in the “Top 5”: Evidence on Pay, Relative Pay, and Performance Using Data from 1,500 Firms Over a Decade,” (with Matthew Allen and John Haggerty), January 2008.

“The Value of Stock Options to Non-Executive Employees,” (with Craig Olson), March 2007.

WORKING PAPERS (continued)

“Are Formal Corporate News Announcements Still Newsworthy?: Evidence from 30 Years of US Data on Earnings, Splits, and Dividends” (with Farzad Mashayekhi), July 2006.

“The Gender Pay Gap for Managers in Nonprofits,” January 2002.

“Unions and the Labor Market for Managers,” (with John DiNardo, and Jorn-Steffen Pischke), August 2000.

“A Simple Empirical Model of Welfare or Work Incentives for Single Mothers,” June 1995.

BOOK REVIEWS

Review of *Personnel Economics in Imperfect Labour Markets*, by Pietro Garibaldi, Oxford University Press, *Journal of Economic Literature*, December 2007.

Review of *Pay Without Performance: The Unfulfilled Promise of Executive Compensation*, by Lucian Bebchuk and Jesse Fried, Harvard University Press, *Industrial and Labor Relations Review*, 59(4), July 2006, 672-674.

OTHER WORK IN PROGRESS

“Pay and Performance for University Presidents,” (with Orley Ashenfelter, Sherrilyn Billger and Ronald Ehrenberg)

“The Illinois Historical Salary Census,” (with David Card)

“Estimating the Expected Cost of Employee Stock Options” (with Craig Olson)

“Job Matching and Employment Duration” (with Todd Elder)

“The Night Shift” (with Darren Lubotsky and Douglas Webber)

“Quantile Regression for Management”

“Sleepy Traders and Stock Prices” (with Lawrence DeBrock and Joe Price)

RESEARCH REPORTS

The 2011 U.S. Top Executive Compensation Report, (with Judit Torok), The Conference Board, 2011.

U.S. Salary Increase Budgets for 2012, (with Judit Torok), The Conference Board, 2011.

The 2010 U.S. Top Executive Compensation Report, (with Judit Torok), The Conference Board, 2010.

Top Executive Compensation in 2009, (with Judit Torok), The Conference Board, 2010.

RESEARCH REPORTS (continued)

Directors' Compensation and Board Practices in 2009, (with Matteo Tonello and Judit Torok), The Conference Board, 2010.

Top Executive Compensation 2009 – Key Findings, (with Judit Torok), The Conference Board, December 2009.

Top Executive Compensation in 2008, (with Judit Torok), The Conference Board, 2008.

Directors' Compensation and Board Practices in 2008, (with Matteo Tonello and Judit Torok), The Conference Board, 2008.

Top Executive Compensation 2008 – Key Findings, (with Judit Torok), The Conference Board, December 2008.

Directors' Compensation and Board Practices Report 2007, (with Linda Barrington and Judit Torok), The Conference Board, 2007.

Top Executive Compensation 2007, (with Linda Barrington and Lisa Hunter), The Conference Board, 2007.

2007 Report on Top Executive Compensation—Key Findings, (with Linda Barrington and Lisa Hunter), The Conference Board, 2007.

Layoffs, Top Executive Pay and Firm Performance, United States Department of Labor, 1996

COLUMNS

“The Wage Gap Versus the Total Compensation Gap,” *Workspan*, December 2013, forthcoming.

“Employee Choice Over Pay Mix,” *Workspan*, November 2013, forthcoming.

“Data Sources on Compensation and Individuals with Disabilities,” *Workspan*, October 2013, 12-13.

“CEO Pay Mix,” *Workspan*, September 2013, 12-13.

“Compensation Research Summer Camp,” *Workspan*, August 2013, 12-13.

“Compensation Tournaments,” *Workspan*, July 2013, 12-13.

“CEO Pay and Layoffs,” *Workspan*, June 2013, 12-13.

“Baseball and Thoughts on Pay Dispersion in Teams,” *Workspan*, May 2013, 12-13.

“Pay in Nonprofits,” *Workspan*, April 2013, 12-13.

“Valuing Employee Stock Options,” *Workspan*, March 2013, 10-11.

“Pay and Relative Income Within Couples,” *Workspan*, February 2013, 12-13.

“Presidential Pay,” *Workspan*, January 2013, 12-13.

COLUMNS (continued)

- “Top Athlete Pay,” *Workspan*, December 2012, 12-13.
- “Economic Effects of the Minimum Wage,” *Workspan*, November 2012, 12-13.
- “How The Olympics Remind Us About Compensation,” *Workspan*, October 2012, 12-13.
- “CEOs Off the Clock,” *Workspan*, September 2012, 13-14.
- “Vacation as Compensation,” *Workspan*, August 2012, 13-14.
- “Paying Professors” *Workspan*, July 2012, 12-13.
- “Does Graduating in a Bad Economy Penalize Your Pay for Life?” *Workspan*, June 2012, 13-14.
- “Governance and Executive Pay in Nonprofits?” *Workspan*, May 2012, 13-14.
- “Why Do We Tip?” *Workspan*, April 2012, 12-13.
- “Massive Kinked Bonuses,” *Workspan*, March 2012, 12-13.
- “Go Big: The Firm-Size Pay (and Pay-Mix) Effect,” *Workspan*, February 2012, 12-13.
- “Nothing Lasts Forever: A Different Way to Structure Severance,” *Workspan*, January 2012, 12-13.
- “Is There Deadweight Loss in Holiday Rewards?” *Workspan*, December 2011, 11-12.
- “Pay System Gender Neutrality,” *Workspan*, November 2011, 11-12.
- “Does More Education Cause Higher Earnings,” *Workspan*, October 2011, 12-13.
- “Say On Pay and Compensation Design,” *Workspan*, September 2011, 10-11.
- “Lessons in Pay Design from the Farm,” *Workspan*, August 2011, 11-12.
- “Linking Compensation and Job Losses During a Recession,” *Workspan*, July 2011, 12-13.
- “Does That Pay Practice Really Have Any Impact?” *Workspan*, June 2011, 12-13.
- “Pay Ratios and Inequality,” *Workspan*, May 2011, 14-16.
- “Pay Secrecy and Relative Pay,” *Workspan*, April 2011, 10-11.
- “Motivating with Efficiency Wages and Delayed Payments,” *Workspan*, March 2011, 10-11.
- “The Relationship Between Company Size and CEO Pay,” *Workspan*, February 2011, 10-11.
- “The Disconnect Between Employer Cost and Employee Value,” *Workspan*, January 2011, 10-11.

REFEREE AND EDITORIAL SERVICE

(Advisory Board, Compensation and Benefits Review, 2012 – present)

(Advisory Board, Journal of Organizational Effectiveness: People and Performance, 2012 – present)

(Associate Editor, Journal of Labor Economics, 2008 – 2012)

(Associate Editor, Labour Economics, 2008 – present)

(Associate Editor, Economics Bulletin, 2005 – July 2010)

(Editorial Board, Industrial and Labor Relations Review, 2006 – present)

Academy of Management Journal, Advances in the Economics of Sport, American Economic Journal: Applied Economics, American Economic Review, British Journal of Industrial Relations, Economic Theory, Eastern Economic Review, Economic Inquiry, Economic Journal, Economics Bulletin, Economics of Education Review, Economics and Politics, Economics Letters, Education and Finance Policy, Empirical Economics, Explorations in Economic History, Financial Review, Industrial and Labor Relations Review, Industrial Relations, International Economic Review, International Journal of Manpower, International Journal of Organizational Analysis, International Migration Review, International Review of Economics and Finance, Journal of Business, Journal of Business and Economic Statistics, Journal of Corporate Finance, Journal of Human Resources, Journal of Economic Psychology, Journal of Finance, Journal of Industrial Economics, Journal of Labor Economics, Journal of Law Economics and Organization, Journal of Political Economy, Journal of Public Economics, Journal of Urban Economics, Labour Economics, The Manchester Review, Nonprofit and Voluntary Sector Quarterly, Nonprofit Management and Leadership, Quarterly Journal of Business and Economics, Quarterly Journal of Economics, Quarterly Journal of Economics and Finance, Review of Economics and Statistics

National Science Foundation, Social Science and Humanities Research Council, United States Census Bureau, Various Publishers

GRANTS

United States Department of Education, National Institute on Disability and Rehabilitation Research (NIDRR), Rehabilitation Research Training Center (RRTC) on Employer Practices Related to Employment Outcomes for Individuals with Disabilities (co-PI, with Susanne Bruyere and Linda Barrington), \$4 million, 2010 – 2015.

Compensation in Asia, (CAHRS), 2011 – 2012.

International Compensation, (CAHRS), 2010- 2011.

Costs of Compensation versus Value to the Organization (CAHRS), 2009 – 2010.

Why Managers Fire Workers and How it Affects the Bottom Line (CAHRS), 2008-2009.

Managing Layoffs, Cornell Center for Human Resource Management (CAHRS), 2007-2008.

Stock Options, (with Craig Olson), Cornell Center for Human Resource Management (CAHRS), 2006-2007.

When and Why Do Firms Make Layoffs?, Alfred P. Sloan Foundation, 2001 - 2003.

The Illinois Historical Salary Study, (with David Card), University of Illinois Campus Research Board, 2003.

What Happens to Firms When Workers are Let Go?, Illinois Center for Human Resource Management, 2001-2002.

Stock Options for Employees in Large U.S. Firms, Illinois Center for Human Resource Management, (with Craig Olson), 2001-2002.

Studies in Executive Compensation, University of Illinois Campus Research Board, 2001-2002.

What Drives Nonprofits? Evidence from Managerial Pay, Performance, and Market Competition in Nonprofit Hospitals, National Bureau of Economic Research, (with Richard Arnould, and Marianne Bertrand), 1999-2000.

Computation Problems in Applied Economics, Intel Corporation, (with Lawrence DeBrock and Roger Koenker), 1998.

Determinants of Managerial Compensation in American Charities, American Compensation Association, 1997-1998.

Unions and Managerial Pay, American Compensation Association, (with John DiNardo and Jorn-Steffen Pischke), 1997-1998.

How to Make Incentive Pay Programs More Successful: Linking Sales Compensation Plans to Firm Performance, Center for Human Resource Management, University of Illinois, (with Paul Oyer), 1997-1998.

Executive Compensation, Firm Layoffs, and Firm Performance, United States Department of Labor, 1996.

SEMINARS AND PRESENTATIONS

University of Arizona, Brigham Young University, University of California at Berkeley, University of California at Santa Barbara, Case Western Reserve University, University of Chicago, Claremont-McKenna College, Cornell University, Harvard University, University of Illinois at Chicago, University of Illinois at Urbana-Champaign, Illinois State University, Kansas State University, University of Konstanz, Marquette University, Massachusetts Institute of Technology, McGill University, University of Michigan, Michigan State University, University of Missouri, New York University, Northwestern University, The Ohio State University, Princeton University, University of Pennsylvania, Indiana University – Purdue University at Indianapolis, Queen’s University, University of Rochester, Stanford University, Texas A&M University, University of Wisconsin at Madison, University of Wisconsin at Milwaukee, Yale University

American Economic Association, Econometric Society, European Society of Labour Economists, Industrial Relations Research Association, Labor and Employment Relations Association, National Bureau of Economic Research, Society of Labor Economists, WorldatWork

TEACHING

Ph.D.Students advised, department, year of degree, and initial placement (* chair of committee):

Pablo Acosta*, Economics, 2006, World Bank
 Ji-Young Ahn, ILIR, Illinois, 2009, Ehwa Women’s College, South Korea
 Carole Amidon, Economics, 2002, ERS Group, Florida
 Vic Anand, Accounting, 2013, Emory University
 Michelle Arthur, ILIR, 2000, Purdue University
 David Balan*, Economics, 2000, Federal Trade Commission
 Sherrilyn Billger*, Economics, 2000, Union College
 Paul Byrne, Economics, 2003, Wabash College
 John Deke*, Economics, 2000, Mathematica Policy Research, Princeton NJ
 Emre Ekinci, Economics, 2012, Universidad Carlos III
 Todd Fister*, ILIR, 2003, Kimberly-Clark, Atlanta
 R. Kaj Gittings, Economics, 2009 expected, Louisiana State University
 Lynn Gottschalk, Economics, 2005 Federal Trade Commission
 Weishi (Grace) Gu, Economics, 2013, UC-Santa Cruz
 Juliana Guimaraes*, Economics, 2001, Universidade Nova de Lisboa, Portugal
 John Haggerty, HR Studies, 2010, Cornell University
 Dan Hanner, Economics, 2005, Federal Trade Commission
 Jeffrey Hemmeter, Economics, 2004, University of California, Davis
 Xin Jin, Economics (current)
 Kandice Kapinos, ILIR, 2007, St. Olaf College
 David Kaplan, ILIR, 2000, James Madison University
 GiSeung Kim, Economics, 2001, LG Economics Research Group, Korea.
 Elizabeth Kiss, Ag. Economics, 2000, Purdue University
 Felice Klein*, HR Studies, 2012, Michigan State University
 Nolan Kopkin, Economics (2013), University of Wisconsin, Milwaukee.
 Gregory Kordas, Economics, 2000, University of Pennsylvania

TEACHING (continued)

Fidan Kurtulus*, Economics, 2007, University of Massachusetts at Amherst
 Regina Madalozzo*, Economics, 2002, Brazilian Institute of Capital Markets
 Farzad Mashayekhi*, Economics, 2003, Moody's K M V, San Francisco
 Catherine McClean, Economics, 2012, University of Pennsylvania
 Daniel Morillo, Economics, 2000, PanAgora Asset Management, Boston
 Ben Ost, Economics, 2011, University of Illinois at Chicago
 Heather Radach, Economics, 2001, Lexecon, Chicago
 Clayton Reck*, Economics, 2004, ERS Group, Florida.
 Eduardo Ribeiro, Economics, 1995, Universidade Federal do Rio Grande do Sul, Brazil
 Laura Ripani*, Economics, 2004, World Bank.
 Patricia Simpson, ILIR, 1997, Loyola University, Chicago
 Michael Strain*, Economics, 2012, American Enterprise Institute
 Mary Taber, ILIR, 1999, Skidmore College
 Maria Tannuri, Economics, 2000, Universidade de Brasilia, Brazil
 Rosemary Walker, Economics, 2000, Wabash College
 Ying Wang, Economics, 2013, Analysis Group
 Douglas Webber, Economics, 2012, Temple University
 Leigh Wedenoja, Economics (current)
 Olga Yakusheva*, Economics, 2005, Marquette University
 Chen Zhao, Economics, 2013, Analysis Group

Courses Taught:

PAY (undergraduate) at Cornell

 Managing Compensation (MILR) at Cornell

 Executive Compensation (MILR) at Cornell

 Job Loss (Undergraduate) at Cornell

 Freshman Colloquium (Undergraduate) at Cornell

 Finance for Human Resources (M.H.R.I.R.) at Illinois and (MILR) at Cornell

 Labor Economics for Managers (M.H.R.I.R.) at Illinois

 Managerial Economics (Masters of Science in International Finance) at Illinois

 Labor Economics I (Ph.D.) and Labor Economics II (Ph.D.) at Illinois

 Applied Econometrics (Masters of Science in Policy Economics) at Illinois

 Microeconomic Principles (Undergraduate) at Illinois

 Labor Problems (Undergraduate) at Illinois

 Labor Economics (Undergraduate) at Illinois and Princeton

UNIVERSITY SERVICE

2012 – 2013 (Cornell)

Donald C. Opatrny '74 Chair of the Department of Economics
 Director, Institute for Compensation Studies (ICS)
 Member, Search Committee for the Dean of the College of Arts and Sciences
 Member, Department of Economics Recruiting Committee
 Member, Cornell University Council on Mental Health and Welfare

2011 – 2012 (Cornell)

Director, Institute for Compensation Studies (ICS)
 Chair, Recruiting Committee, Department of Economics
 Associate Chair, Department of Economics
 Director of Research and Board Member, Center for Advanced HR Studies (CAHRS)
 Member, Cornell University Council on Mental Health and Welfare

2010 – 2011 (Cornell):

Chair, Department of Labor Economics
 Director, Institute for Compensation Studies (ICS)
 Chair, Recruiting Committee, Department of Labor Economics
 Recruiting Committee, Department of Policy Analysis and Management
 Recruiting Committee, Department of Human Resource Studies
 Director of Research and Board Member, Center for Advanced HR Studies (CAHRS)
 Member, Cornell University Council on Mental Health and Welfare
 Member, ILR Admissions Committee

2009 – 2010 (Cornell):

Provost's Budget Model Task Force
 Campus Task Group on Student Services
 Chair, ILR Task Group on Student Services
 Institute for the Advancement of Economics at Cornell
 Director, Compensation Research Initiative (CRI)
 Labor Economics Recruiting Committee
 Director of Research, Center for Advanced Human Resource Studies (CAHRS)
 Center for Advanced Human Resource Studies (CAHRS) Board

2008 – 2009 (Cornell):

Cornell University Financial Policy Committee
 Institute for the Advancement of Economics at Cornell
 Director of Research, Center for Advanced Human Resources Studies (CAHRS)
 Undergraduate Committee, ILR School
 Center for Advanced Human Resources Studies (CAHRS) Board

2007-2008 (Cornell):

Chair, Cornell University Financial Policies Committee
 Economics Field Review Committee
 Director of Research, Center for Advanced Human Resource Studies (CAHRS)
 Review Panel for Cornell Institute for the Social Sciences
 Center for Advanced Human Resource Studies (CAHRS) Board
 Undergraduate Committee, ILR School

UNIVERSITY SERVICE (continued)

2006 – 2007 (Cornell):

Interim-Chair, Human Resource Studies Department, ILR School Cornell (Fall)
 Cornell University Financial Policies Committee (2006 – 2009), Co-Chair (2006 - 2007)
 Labor Economics Search Committee
 Review Panel for Cornell Institute for the Social Sciences
 Center for Advanced Human Resource Studies (CAHRS) Board
 Undergraduate Committee, ILR School

2005 – 2006 (Cornell):

Campus Financial Policies Committee (Spring)
 Committee on Faculty Recruitment and Retention in the Social Sciences
 ILR Committee to Evaluate the Math Requirement
 Departmental Tenure Review Committee
 Center for Advanced Human Resource Studies (CAHRS) Board

2004 – 2005 (Illinois):

ILIR On-Campus Committee, Chair
 ILIR Executive Committee
 University of Illinois Center for Human Resource Management, Co-Director

2003 – 2004 (Illinois):

Economics Junior Recruiting Committee, Chair
 Economics Advisory Committee to the Head
 ILIR On-Campus Committee, Chair
 University of Illinois Executive Board of Center for Human Resource Management

2002 – 2003: (Illinois) On sabbatical (fall)

ILIR Executive Committee
 Economics Search Committee for new Head of Department
 University of Illinois Executive Board of Center for Human Resource Management
 Campus Admissions Committee
 College of Business Educational Policy Committee

2001 – 2002 (Illinois):

ILIR Executive Committee
 ILIR Ph.D. Advisory Committee
 Economics/LIR Faculty Search Committee
 Economics Capricious Grading Committee
 Economics Labor Seminar
 College of Commerce Educational Policy Committee
 College of Commerce Teaching Advancement Board
 Campus Admissions Committee
 University of Illinois Executive Board of Center for Human Resource Management

2000 – 2001 (Illinois):

ILIR Executive Committee
 ILIR On-Campus Committee
 Economics/ILIR Faculty Search Committee
 Economics Advisory Committee to the Head

UNIVERSITY SERVICE (continued)

1999 – 2000 (Illinois):

- ILIR Ph.D. Advisory Committee
- ILIR Speaker-Scholars Committee
- Economics Advisory Committee to the Head
- Economics Graduate Admissions Committee
- Economics Labor Seminar

1998 – 1999: (On Leave all year at Princeton)

- Economics/ILIR Faculty Search Committee

1997 – 1998 (Illinois):

- ILIR Speaker-Scholars Committee
- ILIR Long Distance Learning Committee
- ILIR Admissions and Financial Aid Committee
- Economics Faculty Search Committee
- Economics Labor Seminar

1996 – 1997 (Illinois):

- ILIR Ph.D. Advisory Committee
- ILIR Speaker-Scholars Committee
- ILIR On-Campus Committee
- ILIR Computer Classroom Committee
- Economics Advisory Committee to the Head
- Economics Graduate Programs Committee
- Economics Labor Seminar

1995 – 1996 (Illinois):

- ILIR On Campus Committee, Speaker-Scholars Committee, Computer Classroom Committee

PROFESSIONAL SOCIETY SERVICE

Member, Board of Directors of the Society of Certified Professionals, WorldatWork, 2012 -

Member, Board of Directors, WorldatWork, 2009 - 2011

Board Member, WorldatWork Executive Compensation Advisory Board, 2007 - 2009

Member, Strategic Planning Committee, National Academy of Social Insurance, 2007-2008

Member, Awards Committee, Labor and Employment Relations Association, 2006 – 2010

CONFERENCE ORGANIZATION

Emerging Scholars In Compensation Conference, Spring 2013, Ithaca NY (with Linda Barrington)

21st Century Human Resource Management Practices and Their Effects on Firms and Workers:
ILIR Alumni Professorship Symposium, Institute of Labor & Industrial Relations,
University of Illinois, November 11-12, 2005 (with Craig Olson and Kathryn Shaw)

Job Loss: Causes, Consequences, and Policy Responses, Federal Reserve Bank of Chicago,
November 18-19, 2004 (with Kristin Butcher and Daniel Sullivan)

APPENDIX B

Materials Considered Include The Following:

Papers or Books

Adams, J. Stacy, 1965, "Inequity in Social Exchange," in L. Berkowitz, ed., *Advances in Experimental Social Psychology*, 2, 267 – 299.

Card, David, 1999, "The Causal Effect of Education on Earnings," in Orley Ashenfelter and David Card, Eds., *Handbook of Labor Economics*. Volume #a, Elsevier, 1801 – 1863.

Card, David, 2001, "Estimating the Return to Schooling: Progress and Some Persistent Econometrics Problems," *Econometrica*, 69, 1127 – 1160.

Card, David, Alexandre Mas, Enrico Moretti, and Emmanuel Saez, 2012, "Inequality at Work: The Effect of Peer Salaries on Job Satisfaction," *The American Economic Review*, 102(6), 2981-3003.

Cardinal, Ken and Beth Florin, 2012, *Handbook for Conducting Compensation and Benefits Surveys*, WorldatWork Press.

Hallock, Kevin F., 2012, *Pay: Why People Earn What They Earn and What You Can Do Now to Make More*, Cambridge University Press.

Hallock, Kevin F. and Judit P. Torok, 2010, *The 2010 U.S. Top Executive Pay Report*, The Conference Board, New York, N.Y.

Hungerford, Thomas and Gary Solon, 1987, "Sheepskin Effects in the Return to Education," *Review of Economics and Statistics*, 69(1), February, 175 – 177.

Levine, David I., 1993, "Fairness, Markets, and Ability to Pay: Evidence from Compensation Executives," *The American Economic Review*, 83(5), December, 1241-1259.

Lazear, Edward P. and Rosen, Sherwin. 1986, "Rank-Order Tournaments as Optimum Labor Contracts". *Journal of Political Economy*, 89(5), October 1981, 841-864.

Milkovich, George T. and Philip H. Anderson, 1972, "Management Compensation and Secrecy Policies," *Personnel Psychology*, 25, 293-302.

Milkovich, George T., Gerry M. Newman and Barry Gerhart, 2011, *Compensation*, 10th Edition, McGraw-Hill Irwin.

Milkovich, George T., Gerry M. Newman and Barry Gerhart, 2014, *Compensation*, 11th Edition, McGraw-Hill Irwin.

Rosen, Sherwin S., 1986, "The Theory of Equalizing Differences," in Orley Ashenfelter and Richard Layard, Eds., *The Handbook of Labor Economics*, North Holland, 641 – 592.

Spence, Michael, 1973, "Job Market Signaling," *Quarterly Journal of Economics*, 87(3), August, 355-374.

Weiss, Andrew, 1995, "Human Capital vs. Signaling Explanations for Wages," *Journal of Economic Perspectives*, 9(4), 133 – 154.

Data Sources and Other

I was provided access to all deposition transcripts and exhibits in the case. The following are among the materials I considered:

[REDACTED], PIX00001263, exhibit 119.

[REDACTED], February 13, 2009, 76579DOC005963, exhibit 398.8.

Document from Intuit, Talent Acquisition Hiring Plan, INTUIT_007866, exhibit 1107.2.

Document, 2009 Salary Increase & LTI 'Talking Points', PIX00083585, exhibit, 1307.3

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APPENDIX C
FIGURES

Figure 1.
Hypothetical Market Data

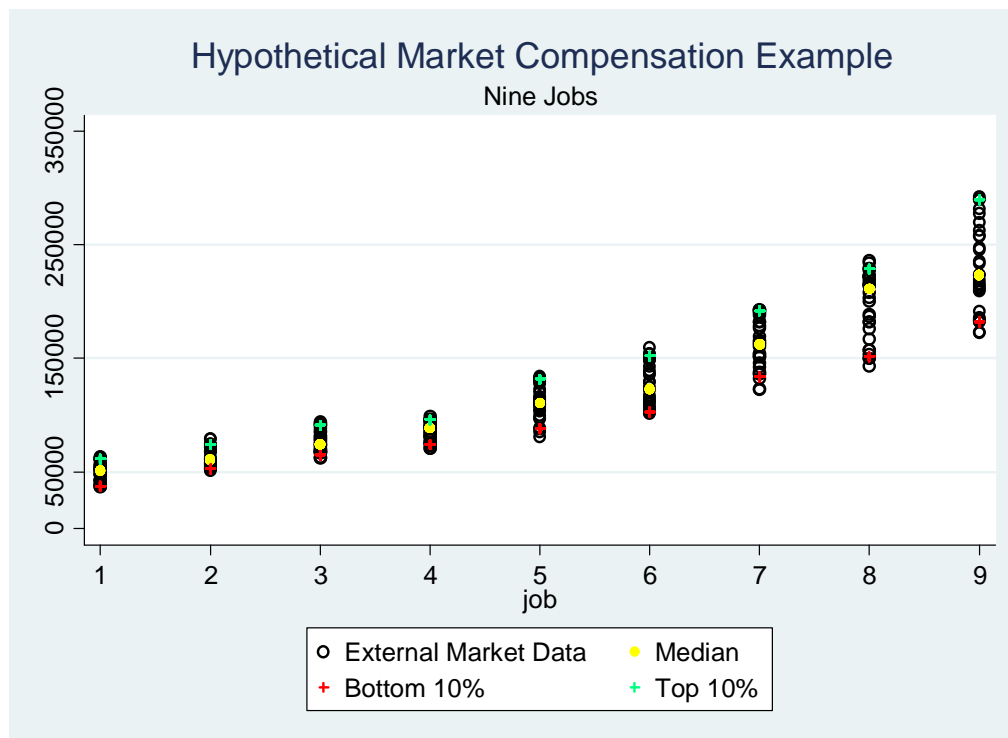
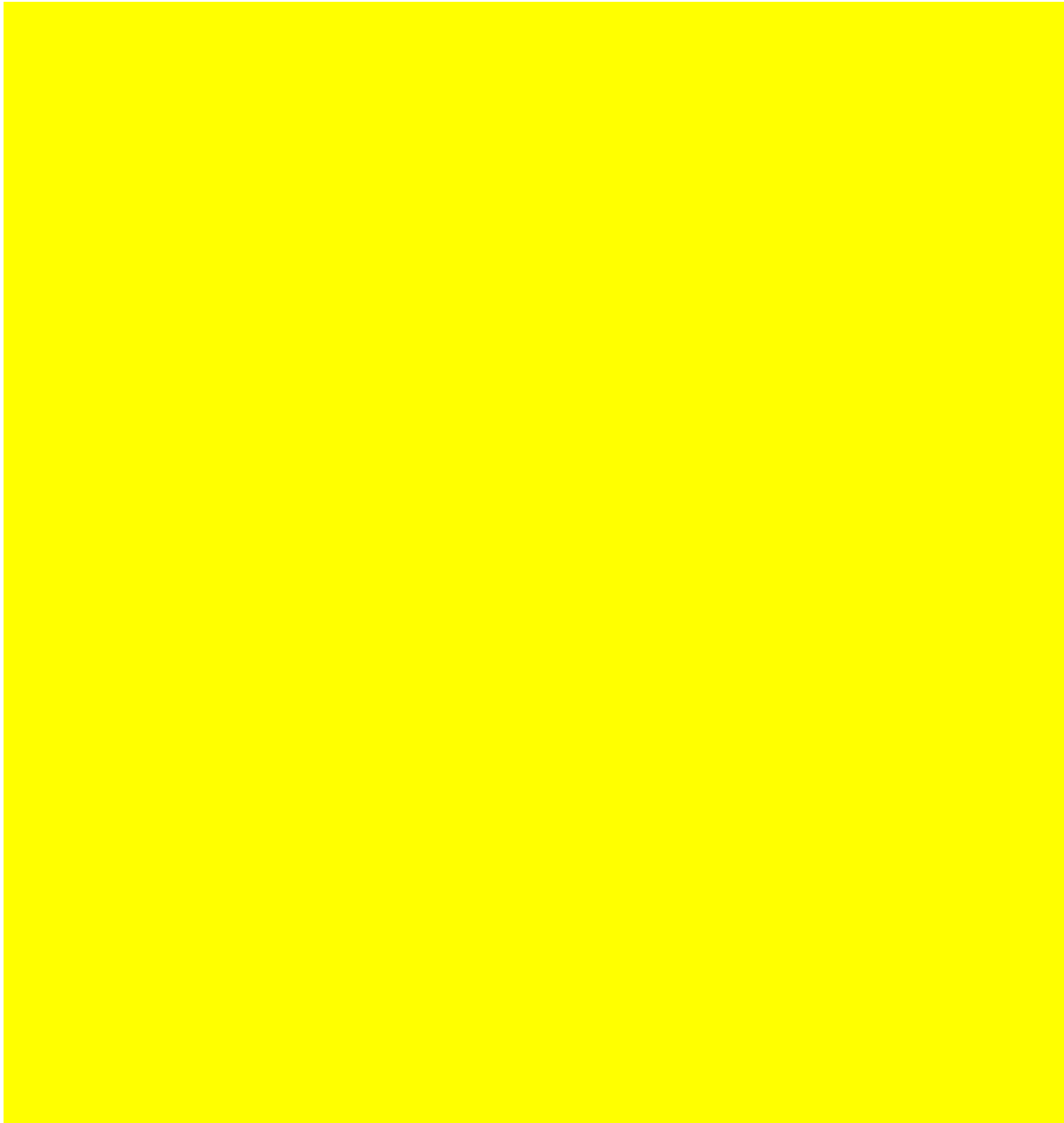


Figure 2.
Example of an Internal Structure from Google in 2004



Source: Created from data in spreadsheet GOOG-HIGH-TECH-00221513.xlsx, tab "Employee Data".

Figure 3.
From Apple Proposed



Source:



Figure 4.
Apple

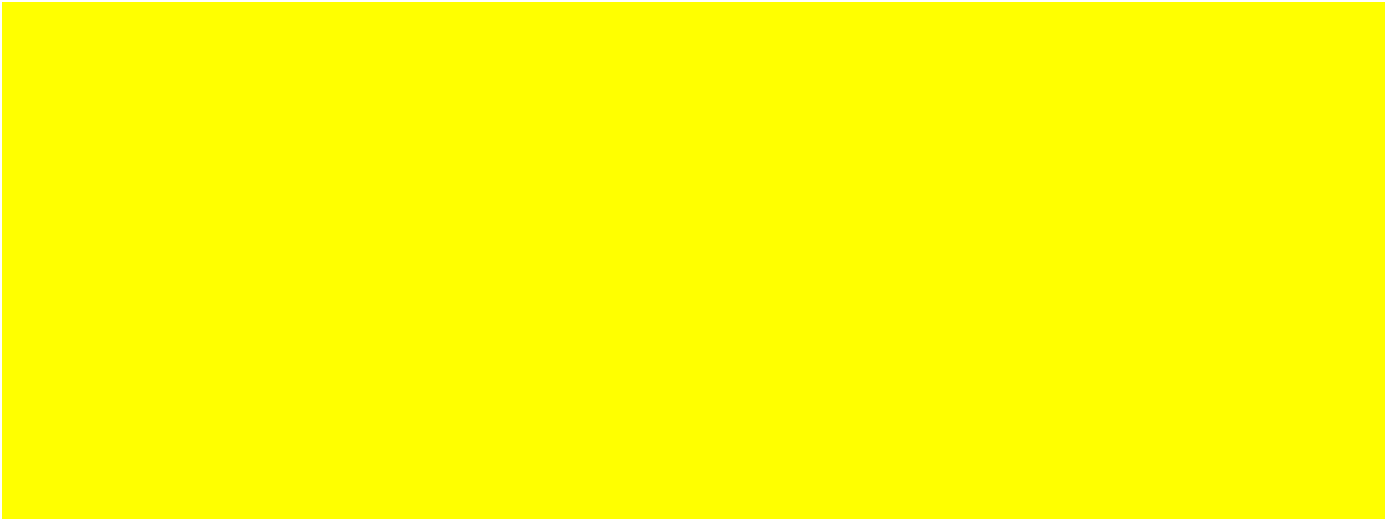


Source:

[Redacted source information]

Figure 5.

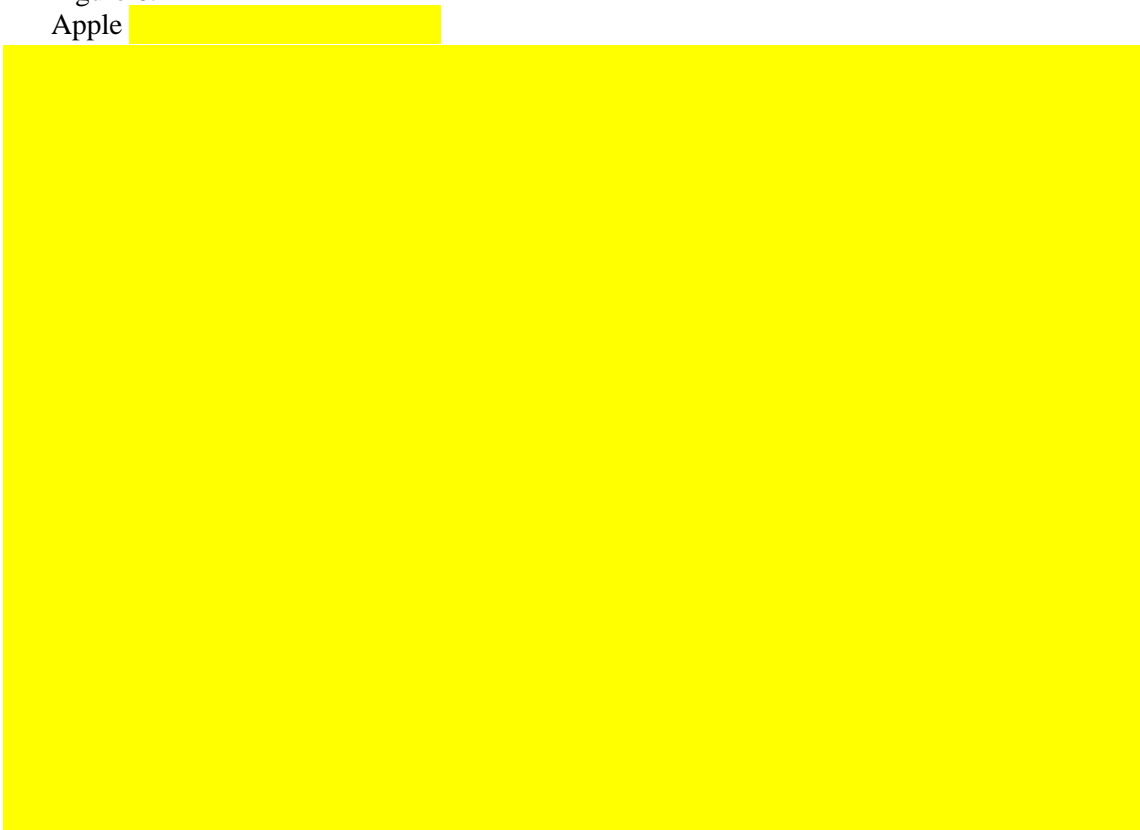
[REDACTED]



[REDACTED].

Source: [REDACTED], 231APPLE009282, exhibit 268.5.

Figure 6.
Apple



Note: Horizontal axis are job codes.

, 231APPLE009282, exhibit 268.5.

Figure 7.



Note: * indicates not legible from original document.

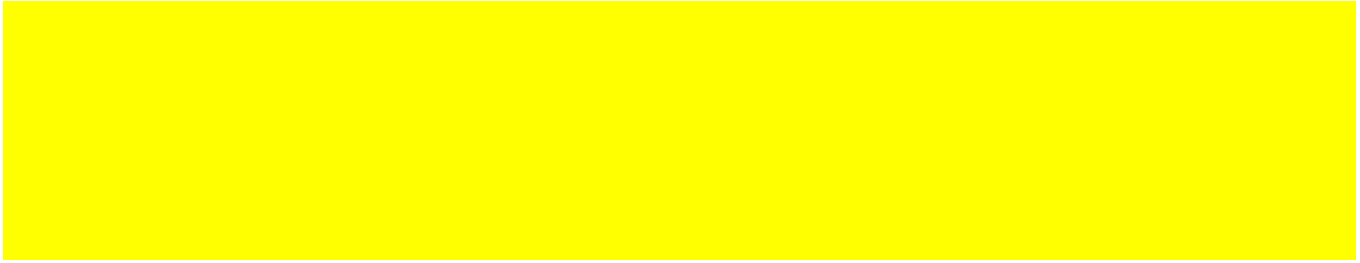
[Redacted text block]

Figure 8.



Source: [REDACTED]
[REDACTED], ADOBE_100614, exhibit 2487.15.

Figure 9.



Source: [REDACTED], 231APPLE095052, exhibit, 1855.107.

Figure 10.



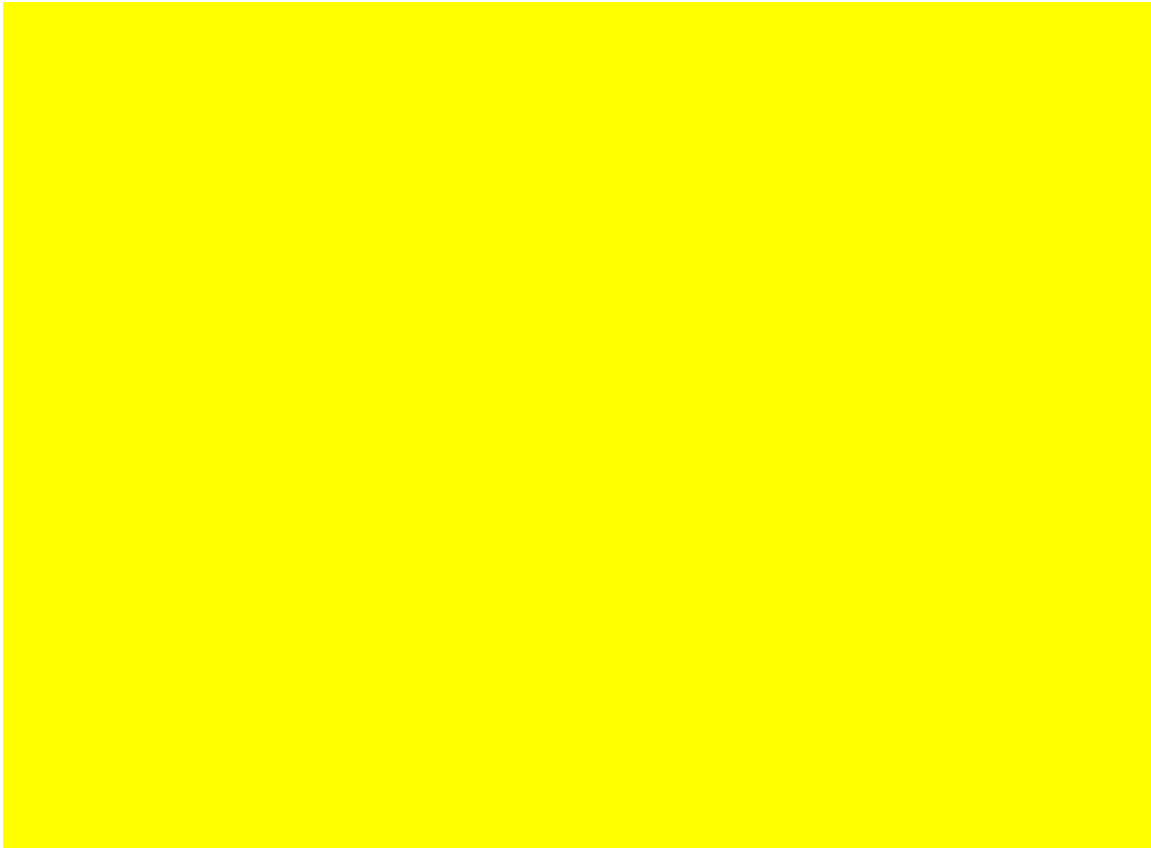
Source: , exhibit 2486.33.

Figure 11.



Source: [REDACTED], 765825DOC001211, exhibit 400.17.

Figure 12.



LUCAS00188913 (Exhibit 711.29) for 2008 and LUCAS00188912 (exhibit 360) for 2006.

Figure 13

